The Electragist

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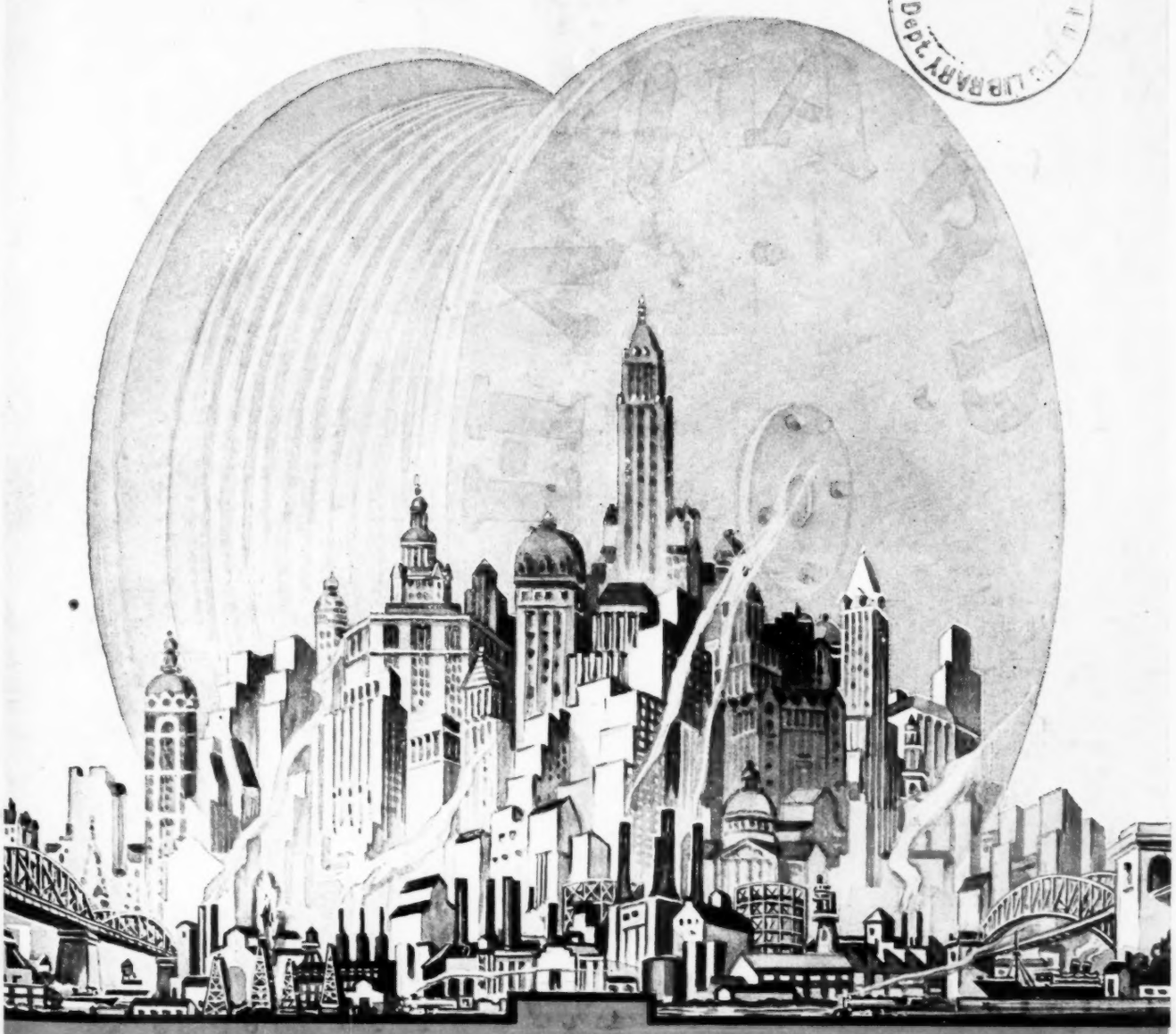

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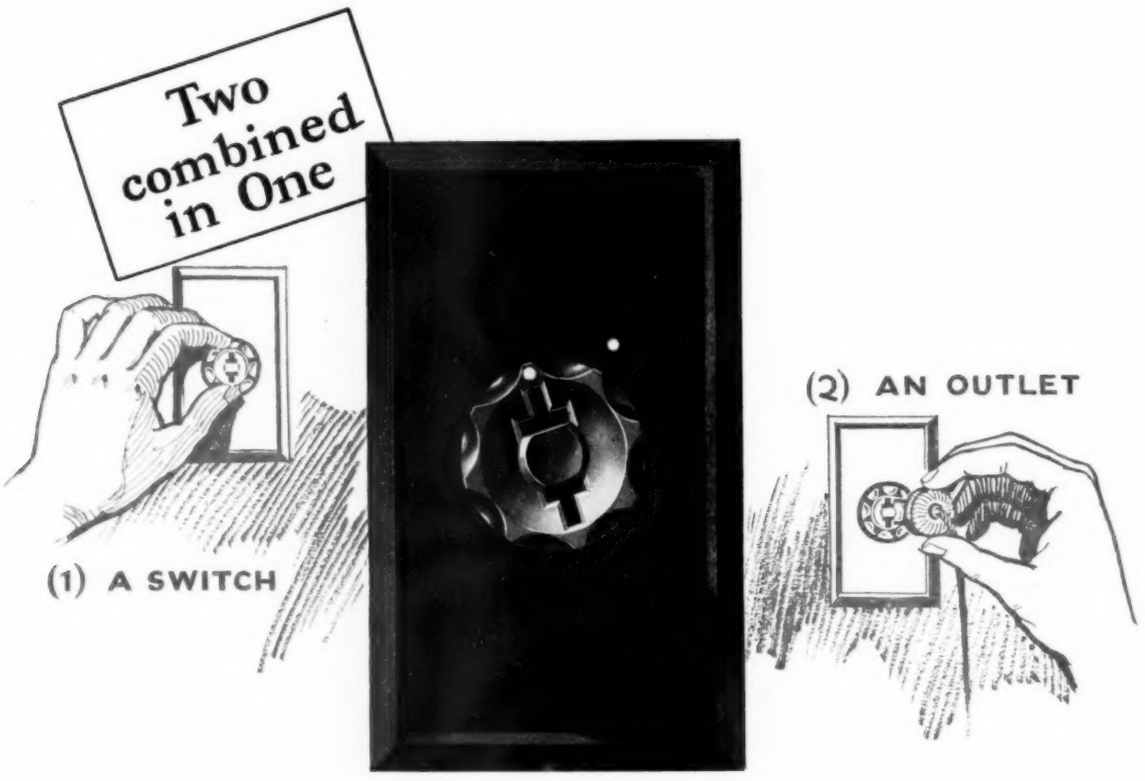

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The Electragist

(The National Electrical Contractor and The Electrical Contractor-Dealer)

Official Journal of the Association of Electragists—International

Vol. 27 MAY, 1928 No. 7

Labor Waste

Efficient Job Management Employs Methods Which Cut Down Nonproduction Time

By S. B. WILLIAMS, Editor, The Electragist

THE prevailing method of competition amongst electrical contractors of the poorer class is to save on material by the process of elimination. The better class of contractors save on labor by reducing waste.

Waste labor is unemployed or nonproductive labor which the contractor pays for. Every dollar that is wasted on the job comes out of the contractor's pocket.

Job management is the employment of methods which cut down labor waste. A job can be run efficiently and economically without driving labor—merely preventing its waste.

There are hundreds of ways in which labor can be wasted. Two that are thought of least often were brought to our attention by W. R. Herstein, a prominent jobber.

(1) "I find that workmen will frequently congregate in front of our city delivery counter and hold long discussions on personal or union matters.

(2) "The location of an electrical supply jobbing house now-a-days should be had with special reference to parking facilities. Many electrical supply jobbers are still located in downtown districts where a contractor's truck will have to drive three or four blocks before finding a place to park. If the material desired is heavy, like conduit for instance, it is quite difficult to get the material from the jobber's warehouse to the place where the workman has parked his car. Electrical supply jobbers seeking new locations should have in mind special reference to parking facilities."

Waiting for Supplies

Another that we never think about is the time lost in looking for the boss. When we think of the times when men lay down their tools to go looking for their employer who is wanted on the 'phone by his wife or someone else, it begins to look as though our contractors had some rather expensive habits. We know men who wouldn't spend twenty-five cents for a messenger boy, but who thinks nothing of letting a wireman lose fifteen minutes looking for him.

These little insidious ways of wasting time are very costly. Then, there are other losses that are directly chargeable to inadequate job management. Losses, such as those outlined below by L. E. Mayer, of the White City Electric Company, Chicago, cost money. Many a job that shows a loss could have been made to come out on the right side of the ledger had the job been properly managed from the beginning.

"In buildings that are above the average height such as a 32 or 45 story building," writes Mr. Mayer, "many factors have to be considered that do not apply to a 10 or 12 story building. In the way of lost labor, fatigue, hoisting, etc., send a man up 20 flights of stairs and start him to work, and you will find for about 15 minutes he won't produce much work, due to a natural condition of fatigue caused by climbing the stairs. This is a job cost and hard to figure in the estimate, but must be taken into consideration in the cost.

Figuring Out the Plans

"Hoisting of materials is a large factor in buildings of these heights and are part of a job cost as much as cartage. Labor to carry materials from one floor to another is a big expense and should be reduced as much as possible. If the foreman or superintendent lay their plans properly, materials can be ordered out and delivered in such a manner so as to meet the requirements per floor, and hoisted to their respective floors.

"Time spent by men running around looking for material is a job cost that can be eliminated if the foreman or superintendent arranges for the material required for each operation of the work.

"Lost time has been a big factor in not properly arranging the job so as to do away with putting a man on the twelfth floor, sending him to the first floor, and then to the sixth floor and so on. Jobs of any size can be arranged so that jumping men around can be reduced to a very minimum.

"Sending out wrong material has cost contractors almost as much money as any one other item.

"Paying men on the job is a cost than can be completely done away with by mailing all checks to the home. A great loss in labor is caused by men being paid on the job. Some places do not allow mailing of checks however, but where it can be done this should be enforced.

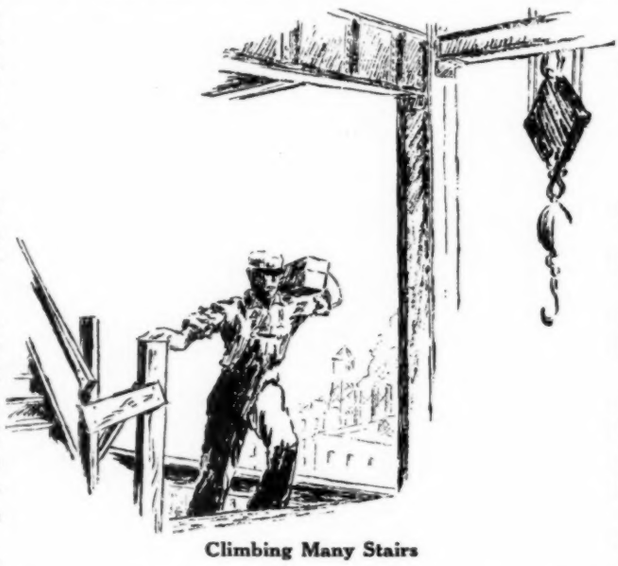
"Poor tools is a job cost and tools should be kept in first class condition at all times.

"A poor layout on the job is a cost. Many a job would have been a success if the ground work for the building had been put on the plans in the contractor's office instead of expecting the foreman to be the draftsman."

There are numerous other causes of labor waste, some of which are as follows:

Loss of time by men around the shop, because whoever is in charge has not put them to work.

Loss of time going from job to shop, and then to another job.



Climbing Many Stairs

Not enough supplies or right supplies delivered to a job.

Material improperly laid out on a job.

Inadequate and indefinite plans.

Material arriving late because of delays by manufacturer or by contractor.

Foremen unfitted for their jobs, resulting in poor job direction.

Loss of time because of accidents.

Lack of proper tools.

Working with dull or partly broken tools.

Work installed in such a way that inspectors will not pass it, thereby causing work to be done over.

Too many men on the job.

Slow progress and piecemeal work by general contractor.

Incompetent mechanics.

Lack of incentive.

Lack of employee morale.

Loss of time at starting and quitting time.

Loafing on the job to make it last longer.

Failure of plans to show heating and plumbing layout causing later removal of wiring.

The contractor who makes money is the one who watches his cost—his largest single item of cost is labor. It should not be wasted.

The best way to prevent these labor wastes is to manage the job efficiently. Time spent in the office by the job superintendent and the foreman going over the plans in advance and seeing that materials and tools are properly assigned, is well worth spending. A study of the causes of labor waste by the management will make it easier to eliminate labor losses.

An Invoice That Prevents Arguments

If Customers Know all the Terms and Conditions They are Less Likely to Dispute Invoices

THE Electric Service Co., Inc., of New Orleans, La., has developed an invoice form which is used in billing for contracting work, designed to prevent arguments with customers over terms and conditions. Often a collection system fails entirely because the customer does not understand all the terms and an argument ensues which results in an obstinate determination never to pay. This can be avoided by making the terms and conditions plain to the customer at all times.

On the back of the invoice of the Electric Service Company are printed all the terms and conditions, as follows:

"Terms are strictly net cash, 30 days, except contract or jobbing work, which is cash upon completion, unless special agreement in writing has been made.

"Eight percent interest per annum will be charged on all bills, if not settled at maturity.

"Labor will be charged at the rate of $2.50 for journeymen and $1.00 per hour for helpers, from the time men leave until they return to the shop. Higher rate charged for expert machine repair men.

"From 8 A. M. to 5 P. M. constitutes a regular working day; therefore any work executed before or after these hours will be charged at double the regular rate of pay. All Sundays and holidays double time.

"A minimum charge of not less than $1.50 will be rendered for any work of less than one hour's time or fraction thereof. This covers fuse trouble and minor adjustments to equipment requiring less than one hour's time to correct.

"Carfare and other traveling expenses will be charged for at cost.

"As we have to pay our men time when traveling, same will be charged for at regular rates.

"All workmen are provided with sheets to be signed by customer, to avoid disputes.

"No allowance for breakage in transportation.

"No invoice rendered for less than 50 cents.

"All of our mechanics are certified electricians and must execute their work in accordance with rules of the National Board of Fire Underwriters and the City Electrical Inspectors."

Collections--II

How to Collect From All Accounts Without Losing Customers or Decreasing the Volume of Sales

By HARR F. RANNEY
Associate Editor, The Electragist

PERSEVERANCE is emphasized by C. P. Rumble, of Hume and Rumble, Ltd., Vancouver, B. C., as a collection necessity; he also suggests making the account clear by giving the statement in full detail without technical terms, trade numbers, and initials which the customer cannot understand. Persistency and frequency of attack is also mentioned by the Newbery Electric Corporation of Los Angeles, which keeps customer records on index cards and sends notices at five-day intervals. The record card provides for information on billings and follow-ups. H. R. Burdick, of this company, says: "We believe the most essential things in collecting are to get the invoice out promptly and correctly and follow up for collections when immediately due and at definite intervals until settled". This company makes use of printed statements with typed notations and printed notices.

G. E. Goodell and Sons, Abilene, Kansas, increase the effectiveness of their invoices by printing a letter on the back of each statement. There is a series of three letters requesting payment, printed in typewriter type, and these are signed and sent out with the record of debt on the reverse side.

Short Letters

The Whitney Electric Company, Colorado Springs, Colo., gets good results from a series of short form letters which are typed individually by the bookkeeper and sent out if the first bill is not paid within thirty days. The series has been successful in collecting 99.9 percent of all accounts, and the final loss is only one-tenth of 1 percent. The letters are simple requests for money and undoubtedly owe their success to the frank calm manner of asking for payment. All the letters are short. The first one reads:

"A settlement of your account of (date), amounting to (amount), which you have doubtless overlooked, will be greatly appreciated."

A Complete Collection Series

THE following set of seven letters is used by the Triumph Electric Co., Inc., of Sheffield, Ala.:

Number One

In view of the fact that our accounts are due and payable by the 10th of the month following that in which work was done or material furnished, may we remind you that your account amounting to ——— is now past due.

We are sure this was just an oversight on your part and now that it is brought to your attention may we not have your check by return mail? Your prompt attention would be most greatly appreciated by

Yours for better service,

———

Number Two

The question of finances is a perplexing one in any business such as ours, where there is a considerable investment at all times in stock, fixtures and equipment. If we have too much of our capital tied up in book accounts, we can't buy the new stock we need from time to time, or have difficulty in paying our own obligations.

And so I know you'll pardon the liberty we are taking in reminding you that your account of ——— is now past due. If you can favor us with a check soon, it will be much appreciated.

Yours very truly,

———

Number Three

Someone has said that life is just one thing after another; we no sooner pay one bill than another comes due. So to meet our own obligations we have to depend on our customers paying their accounts promptly, at the time agreed upon.

No doubt, you have just overlooked the little matter of the account which you owe us. The amount is ———. It will assist us very much if you will let us have a check soon.

We dislike to bother you about this—but we do need the money.

Yours very truly,

The second letter says: "We have had no response to our last letter requesting a settlement of your account of (date), amounting to (amount). Kindly give this your immediate attention, and oblige."

The third letter sets a date by which the account must be paid. The fourth sets a final date after which it will be put in the hands of an attorney.

Tip-Ons

Greater effect can be added to invoices by attaching stickers or tip-ons. The Juergens Electric Co., of Rome, N. Y., uses colored tip-ons which are multigraphed on colored paper and clipped to invoices and statements. The first reads: "Your cooperation is requested by payment within thirty days from date of this bill". The second, which is pink, is attached to thirty-day invoices, and reads: "We cannot render prompt and efficient service without your cooperation. Kindly send us your remittance for this account which is now PAST DUE". The third, which is brown, goes with the second statement, and reads: "We wish to avoid the expense of collecting this account in person which will be necessary unless your check is received by return mail." If check has not been received by ninety days, a postcard is sent out and Mr. Juergens or one of the salesmen calls on the customer and either gets the check or a promised date of payment.

A Flexible Collection System

Many contractors find it impossible to use a standard collection system because their customers are of such varying types that flexibility is necessary. One contractor in Pennsylvania never uses form letters but writes a special letter to every overdue account, adapting the letter to the circumstances of the individual.

All methods of collecting have been tried at one time or another in the past.

but it was found that letters proved to be the best for all around purposes. Occasionally the telephone is used with considerable success, and rarely the manager makes a personal call on a delinquent account. Most collections are made entirely by mail.

A cash discount of 2 percent for payment within ten days is allowed, and this brings the checks in quickly from the good quick-paying cash customers.

In writing the collection letters, a number of points are borne in mind, and the style of letter is varied accordingly. Roughly speaking, the kind of letter is influenced by the class of customer, these being divided into four classes, (a) old customer with satisfactory credit; (b) physicians and other professional men; (c) householders, mostly women; (d) business firms.

In the case of old customers the letters must be written with great care. Professional men collect their own accounts slowly and therefore this contractor does not put pressure on such accounts until they are three months old. With housewives, because department stores are extending from sixty to ninety days credit to these customers, it is necessary to be careful in pressing for payment. To the usual business firms letters are written promptly and requests for payment made at the end of thirty days.

This contractor is a member of the local credit reporting bureau and a line carrying this information is printed on all letterheads, which doubtless has some influence on quickening payments. A suit is rarely entered and never unless every possible means of collecting has failed. Even then a suit is infrequent because the cost often is greater than the money obtained. If the letters fail to collect, the account is turned over to the local credit bureau which lists the delinquent as poor pay and attempts to collect through its collection department.

Losses of this contractor for several years have averaged from one-quarter of 1 percent to one-third of 1 percent per year, which is very low.

Sample Letters

A sample of the types of letters dictated and typewritten to various characteristic customers follows:

To an old and valued customer, a prominent and wealthy business man: "We would appreciate your consideration of the enclosed account at this time if possible."

Number Four

This is another little reminder of the account you owe us, amounting to ——.

We are always glad to extend credit for a limited period to our good customers, such as yourself. But we could not continue in business long if we permitted these accounts to run indefinitely.

If there is any error in the account, we shall be very glad to make it right. We are in business to make friends as well as customers.

Please let us hear from you promptly.

Yours very truly,

Number Five

This is the fifth reminder we have sent you about your account, which is now long past due; but so far we have had no response from you.

Amount ..... Due .....

When the account was opened, it was understood that it was to be settled by a certain date. That was one of the conditions of the transaction; we have been depending upon a settlement at that time to assist us in taking care of our own obligations.

No doubt, there is some good reason for the delay; but we feel that you should at least give us some explanation.

Yours very truly,

Number Six

One of the greatest assets any man can have is a good credit rating. The time comes in nearly every man's life when his success or failure depends very largely on his ability to obtain goods or money on credit.

That's why we feel certain that you will not want to delay any longer in taking care of your account with us, which amounts to ——.

We have sent you five statements about this account, and we have had no response to any of them. Is there any good reason for this silence? We must insist that you pay the account without further delay.

Yours very truly,

Number Seven

Your account of —— is now long past due, and we have sent you six statements about it, all of which you seem to have ignored.

The time has come when it is evident that we must take some action to collect the account. But we still feel that you really want to meet your obligations—that you would dislike to be marked down on the books of the business men of this community as a poor credit risk.

This is our final statement. If we do not hear from you within the next few days, we shall have to take some steps to enforce collection of the account.

Yours very truly,

To an old customer, fully responsible, whose valued account is six months past due: "If convenient to take care of this account at this time, we would appreciate your consideration."

To a six months old account on which three payments have been made: "We are wondering if you would let us have a note for the balance of this account, which note we could discount and thereby make the funds available. We would be willing to renew the note at maturity if not convenient at this time for you to meet it. Appreciating your anticipated courtesy."

To a man of large means who is an old customer but ignores statements: "We would appreciate the courtesy of a reply to our letter of November 5 covering your account, concerning which we have written several letters without reply. You will appreciate our disposition to cheerfully correct or straighten out any items on any account which may not appear right. Our hands are completely tied, however, where an account is not paid, and no attention whatever given to any inquiries regarding it. Please let us hear from you."

Slow Pay Account

To a new account with a reputation for slow pay: "Please note your account as shown by enclosed statement is quite a little past due. All contract work is cash on completion, and you will note, therefore, that this account is now more than two months past due. We will ask you to give this consideration at this time."

To an account two months old, a new customer: "Please let us have remittance covering the enclosed account, which is quite a little past due."

Large account, nearly a year old, recent items having been paid: "We have not been favored with reply to our letter of November 5 concerning your account. So far as we know no effort whatever has been made to cover it. We believe it is unnecessary to call attention to the fact that an account more than a year old should not only be paid, but that any inquiry regarding it should be promptly and courteously answered. Will you do us the favor of letting us hear from you at once, if there is any reason why this should not be paid? Further, will you see that a check is enclosed with your letter?"

To an account five months old, no reply to letters: "We shall be obliged to take definite steps for collection of the enclosed account unless check is received covering it during the coming week."

Co-operative Board of Appeal to Hear and Decide Intra-Industry Arguments Has Been Established in California

California Plans to Arbitrate Arguments

DISAGREEMENTS between contractor-dealers and central stations over merchandise selling methods will now be arbitrated in California, as a result of a joint industry meeting in San Francisco on March 16.

A joint committee was formed, with representatives of the California Electrical Bureau, the Pacific Gas and Electric Company, the Great Western Power Company, and the Association of Electragists, which will meet once a month to discuss the problems which arise during the month affecting the electrical contractor-dealers and the central stations. This committee will act as a board of appeal in any argument between a dealer and a central station in the event that the dealer and the local manager are unable to come to an agreement.

As outlined by Edward Martin, vice-president of the California Electragists, in a letter to all contractors in the territory of the Pacific Gas & Electric Company and the Great Western Power Company, the committee will operate as follows:

The joint committee shall meet once each month for the purpose of discussing mutual problems of interest to electrical contractors and dealers, and the Pacific Gas and Electric Company and/or the Great Western Power Company.

The Pacific Gas & Electric Company, and the Great Western Power Company will place with all electrical contractors and dealers a copy of their servicing policy upon request at local office.

Should any difference arise between the central station and the dealer, that the dealer take steps to settle the difference at once by taking the matter up with the manager and sales manager in the district.

In the event it is impossible to reach any satisfactory agreement with the district manager and sales manager, then the matter shall be referred to the California Electragists and they will, in turn, refer the matter to the joint committee for settlement.

Endorsement of the organization of the California Electragists and greater industry co-operation were features of the San Francisco meeting.

C. J. Geisbush addressed the meeting on behalf of the electragists, saying that the electrical contractor-dealer is beginning to take his proper place beside other branches of the electrical industry in numerous market development campaigns. Mr. Geisbush pointed out that there are still many contractors who through ignorance, lack of vision or laziness refuse to co-operate, and this is not confined to contractors. Mr. Geisbush said:

Inference or implication, when used by a power company representative to indicate to a prospective customer that the progressive contractor is not equipped to render service or supply equipment of equal value, defeats the very purpose of our market development plan. Such argument implants in the minds of the buying public the idea that the power company's office is the only place where electrical service or equipment can be obtained with entire satisfaction. Within the industry such a selfish attitude breaks down the confidence of the interested electrical contractor, destroys his initiative, and tends to impede the results from our united efforts.

The market development plans of electrical industry will fall short of their desired goal as long as short-sighted contractors continue to obstruct the extensions of electrical service through ignorance or design. The industry will never fully realize its desire to be a "united industry" while power company salesmen, in their eagerness for commissions, use inference and implication to defeat a sale by a progressive and forward-looking electrical contractor.

To create public acceptance of the electrical idea, all forces of the industry are needed. With this task before us, we have no place for family quarrels, petty bickerings and misunderstandings. We stand for united industry in all that the term implies. We have enrolled as members approximately 20 percent of the total contractors in the state, and we represent approximately 15 percent of our national membership. On some sides we find this lack of membership an indictment against the California Electragists. Actually this lack of membership is an indictment against the electrical industry. The industry needs wide-awake, progressive, creative retail outlets. If an insufficient quantity of these outlets now exists, the industry must build them. The California Electragists offer the solid foundation upon which to build. It becomes your job as industry men to help with the erection of the structure.

R. E. Fisher, vice-president of the Pacific Gas and Electric Company spoke on behalf of his company, and read the following policy of the Pacific Gas and Electric Company with respect to electrical merchandising:

We believe that the public must be served.

That best public service can only come from a united electrical industry.

That an organized and united industry is essential if the maximum amount of business is to accrue to the four major electrical groups through creation of consumer acceptance of our products.

That such a united industry will successfully compete with other organized industries to the end that a fair share of the public buying power will be obtained.

That the manufacturers and jobbers can best contribute to this plan by supplying well advertised merchandise of unquestionable quality at prices which permit the seller a sufficient profit margin.

That merchants and dealers can and should retail electrical merchandise at prices fair to themselves and the public by such methods as have been found to be sound by successful retailers.

That the power company, in addition to supplying quality service at fair rates, assume leadership in the sale of quality merchandise at retail prices, adhering to ethical merchandising methods on a basis where all legitimate retailers may successfully compete.

That such ethical leadership has stimulated and will continue to stimulate public buying of appliances, wiring, current, and general supplies.

That it is the duty of the utility particularly to do pioneer selling in that appliance field where there is no public demand or due to special conditions, no adequate retail profit.

That it is the desire of the Pacific Gas and Electric Company to encourage as many legitimate retail appliance dealers as can economically operate; to co-operate with such natural outlets by financing and executing constructive educational selling and advertising campaigns.

To keep an open mind. To be guided by facts. To hold out to all groups the right to full discussion. To hold to those policies we believe to be right but to quickly concede where we find we are wrong.

Members of the joint committee were appointed as follows: Charles T. Hutchinson, California Electrical Bureau; R. E. Fisher, Pacific Gas and Electric Co.; Robert A. Sharon, Great Western Power Co.; Clyde L. Chamblin, Association of Electragists, International; Edward Martin, California Electragists, and C. J. Geisbush, California Electragists.

A Motor Specialist Can Make Money!

From a Small Concern to One of the Largest Motor Shops in the South, With Plenty of Profitable Jobs, is the Record of the S. J. Stewart Electric Company

THE business methods of successful motor specialists are of particular interest right at this time when this important branch of our industry is attempting to set up standards of business practice for itself, as one of the necessary steps in building up better trade conditions. It is true that not all the methods found successful by one firm can be applied with equal success by everyone else in the same business. Conditions vary and the personal equation is always a big factor, hence there is divergence in details. Nevertheless there are certain fundamentals of business practice which are always in evidence when the successful business is analyzed.

At the present time the largest motor specialists in the state of Louisiana and one of the largest firms in this line in the South is the T. J. Stewart Electric Company of New Orleans. The activities of the firm include motor repairs, contracting, the sale of new and used motors, a retail store and a wholesale department.

The jobbing department is quite unique. Mr. Stewart found that in his motor work he required many repair parts and other materials which the regular jobber does not stock, and on account of the distance of New Orleans from the sources of supply he was compelled to stock these materials himself in order to be able to render prompt service to industrial plants and other motor users. As the business grew this stock was gradually increased and diversified and came to be a supply source for the local trade.

Owing to unfavorable local conditions no great effort is made to push the retail sales of the regular lines of electrical merchandise and the volume handled in this department therefore is small. The total sales are distributed to the various departments approximately as follows: Motor repair work and contracting, each 30 percent of the total; sale of new motors, 10 percent; sale of used motors, 15 percent; wholesale and retail sales, 15 percent.

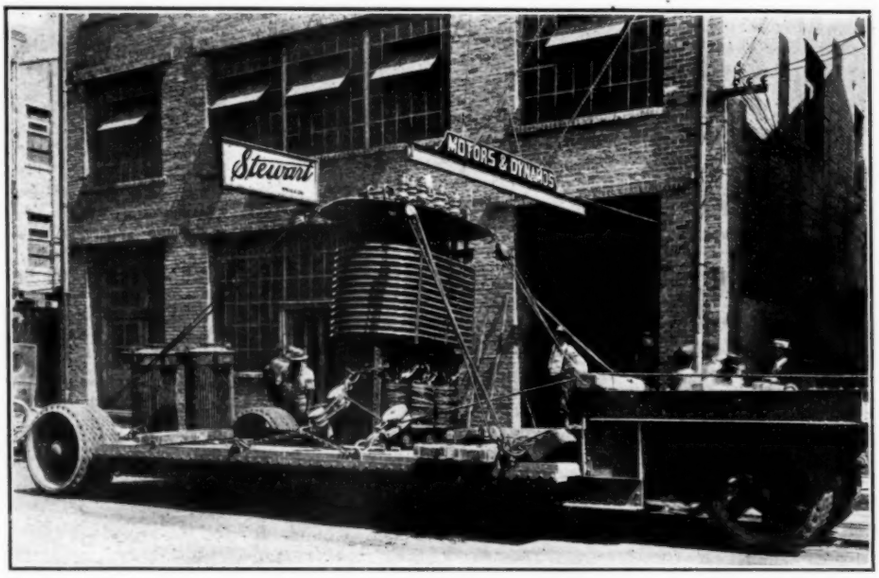
The contracting department while specializing in industrial plant work is not confined exclusively to work of this class. The experience of this firm has proven that it is highly advantageous to carry on both a contracting business and a motor business. The complete installation of wiring and motors by one concern puts all the responsibility upon one party and gives that party full opportunity to make the installation adequate to the customer's needs. Also, good will built up by service rendered through one department helps to bring business to the other department; a satisfactory wiring job helps sell motors and motor repairs and vice versa.

Mr. Stewart has found, however, that it is a mistake to attempt to use shop mechanics as wiremen or to use wiremen even for servicing and small repairs on motors. Motors are installed by wiremen but these men never attempt to take care of any motor trouble.

Motor repair business is secured by advertising and by personal solicitation. On about one-half of this work prices are asked for and submitted, and this method is really preferred by this firm, as they feel that it is more satisfactory to both parties if the customer agrees to the charges in advance. Monthly or yearly contracts for regular maintenance service have not been tried by this company.

Every effort is made in selling construction work to sell an adequate installation. It is always explained clearly to the customer what kind of an installation will be adequate to his needs and why the adequate job will prove to be the more economical job in the long run.

When Mr. Stewart was asked how he holds a motor repair customer, his answer was, "We do work that stands up." As an actual matter of fact rewind jobs done in this shop are equal in every respect to factory work on new motors. Except on the larger sizes of motors, when a single stator coil is faulty the stator is completely rewound. Rewound motors are guaranteed to be in first class condition but no sweeping guarantee is made covering a fixed period of time; it is considered better policy to promise reasonable service and deliver better service



A Record for Speed and Quality. The Large Transformer is on its Way Back to Service After Being Entirely Rewound in Eight Days at the Shop of the Stewart Electric Company in New Orleans

than promised, rather than to make unreasonable statements which may result in arguments with customers.

The firm has tried the experiment of completely overhauling used motors and selling them under a one year guarantee as rebuilt motors. This method did not prove to be commercially successful because an honestly rebuilt motor must be sold at a price too near to that of a new motor. The traffic will not bear a price for a used motor higher than a fairly definite percentage of the price of a new motor, and this limit does not allow sufficient margin on the completely rebuilt machine. While considerable business is done in used motors, these are sold merely as second-hand motors in good operating condition and are not represented as being completely rebuilt.

Trade-in Motors

The majority of the used motors handled are trade-ins taken as part payment for the new motors. The trade-in value allowed or the price paid if bought outright is recorded for each motor and a careful record is kept of the cost of all work done on the motor. In this way the total cost is a matter of record and when the motor is sold the gross profit is definitely known.

All deliveries are handled by an outside firm and are charged to the customer. If a motor is sent out temporarily to replace one which is being repaired, a charge is made for this service on a regular rental basis.

There is little or no competition in the city of New Orleans from service stations of the larger motor manufacturers, though this competition is felt to some extent in the out-of-town territory.

The entire business is well systematized. Adequate cost records are kept on all shop work and construction work and records are kept of the sales in each department. One file contains complete data on every rewinding job turned out in the past eighteen years. This record has proven to be a time saver and a great help in rendering prompt service. Costs being definitely known prices are set to show a profit, rather than to meet competition; unprofitable business is not taken.

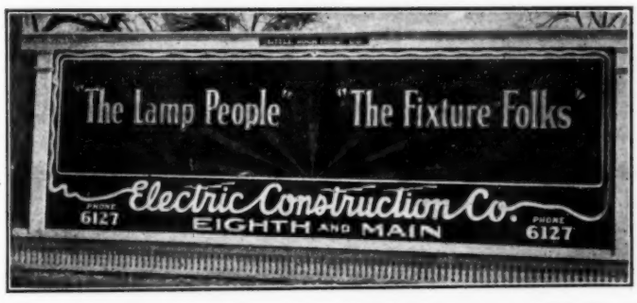
One of the features of this business which has contributed much to its success is a carefully planned apprentice system. Young men taken in as apprentices are not only given an opportunity to acquire manual skill and to learn the best shop methods but are taught to take pride in their work and to feel that there is an obligation resting upon each individual to maintain the concern's high standards of workmanship.

The repair shop is large and the equipment is complete and modern. Mr. Stewart makes a special study of shop methods and has in a number of instances developed new methods which save labor and improve the quality of the work.

Distinctive Advertising by the Use of Color

[How a Fixture Shop Can Put Over a Strong Advertising Message at a Moderate Cost]

BY using the same color scheme in all advertising, and by using a distinctive border and name plate on all printed matter, the Electric Construction Co., of Little Rock, Ark., gains a cumulative effect which adds value to its advertising, and makes it easier for prospective customers to remember it. The use of a distinct color has become, in the neighborhood of Little Rock, a symbol of this contracting concern. The color combination used is an odd shade of purple with yellow.



Several unique methods of advertising are employed by the Electric Construction Company. A golf score card for the local Willow Beach Country Club has been prepared in the distinctive colors of purple and yellow, and the standard company border is used with the hand-drawn name plate. No advertising copy is on the card.

A large billboard near Little Rock, painted in the usual color combination, tells people that the owners of the Electric Construction Company are "The Lamp People" and "The Fixture Folks." Again the standard border and name plate are used. The billboard is a sample of good advertising, since it contains only a few words—no more could be read by people in a fast moving automobile—and is in bright, attention-attracting colors.

On every fixture is a price tag, also printed in purple and yellow, with a guarantee on the back, reading: "This fixture, like all the products sold by us, is absolutely guaranteed to give you satisfaction. If you require additional outlets, lamps, or any electrical appliances, just call us and we will send out your needs and install them for you. You may need additional fixtures—we are 'The Fixture Folks.' You may want a table, bridge, boudoir, bed, floor or other lamps,—We are the 'The Lamp People.' For anything electrical —'Lifetime Wiring,' fixtures, lamps or appliances, Phone 6127."

"The guarantee tag is emphasized," according to F. C. Bragg, president of the company, "when showing our fixtures and we find that real estate dealers leave our tag on fixtures installed in their houses as it adds prestige to the equipment for their customer to know that the fixtures in the home they are buying are guaranteed, and are not just so much metal and wire assembled and sold without responsibility."

The letterhead used by the Electric Construction Company is attractive, being lithographed in three or four colors, with representations of attractive fixtures, in addition to the address, telephone number, officers, and other information. The letterhead carries the interesting information that the company was established in 1887.

A Successful Plan for

Taking Industrial Business Away from the Jobber

By M. S. MacNAUGHT,
Vice-President, Barnes-Pope Company, Boston, Mass.

WHENEVER electrical contractors get together discussion eventually turns to the problem of meeting jobber competition in the industrial field. Complaint is general, direct selling jobbers are roundly condemned and the criticism is justified, but criticism alone will never eliminate the practice.

The resolutions passed at jobber's conventions accomplish nothing, either; for the same jobber who piously preaches trade ethics to his fellows is not above selling the mills of his vicinity at the same prices he quotes his biggest contractor account. Salesmanship and the soundest possible business methods, plus economic pressure, can alone alter the existing conditions for the contractor's benefit.

Many New Accounts

In our company we have for some time welcomed every opportunity to make contact with industrial and other large establishments and our solicitation is resulting in a gradually lengthening list of profitable accounts. Practically every new customer has been in the habit of purchasing electrical material direct from a wholesale house; but we take pride in the fact that after we have done the maintenance work for these factories a few months the jobber's salesmen begin to detect a growing leanness in their orders.

Our methods of combatting the jobber have been more than occasionally successful. In the hope that other contractors may find our policies an aid in obtaining a fuller share of industrial business the writer is briefly outlining two or three lines of procedure. We have also found a few faults common to many electragists in handling their industrial patrons which will be dealt with as a subject allied to the jobber menace.

Of course the simplest way to approach the situation is from the point of view of fair play to all concerned. Where a prospect is apparently broad-minded, and particularly if the contractor is already doing his work, the problem is comparatively simple. In such a fortunate case the argument may be advanced that furnishing workmen when, as, and if, wanted is a real service and an expensive one for the contractor to handle. It therefore justifies in return an opportunity to derive a reasonable profit, which the contractor can only obtain if he is permitted to furnish material as well as labor, the selling price of both being adjusted to cover overhead and yield a nominal margin of profit.

As a matter of cold fact, it is surprisingly costly to send workmen out on small jobs, particularly the rush or emergency type so common to industrial accounts. For instance, a journeyman is working on a contract job. At nine o'clock he is just getting into the swing of the work when he receives a hurry call to install a switch at the Union Foundry Company. He packs his tools, rushes over to the foundry, finishes at three o'clock, and then returns to the contract job. At the end of the week his time slip, Oked by the watchful plant time keeper is received at the office. Five hours have been charged to the emergency job, three hours to the contract. But the time from eight to nine was practically wasted, so far as real production goes, as was the time from three to five. So actually eight hours were spent to get credit for five hours time at the foundry.

Counting the Loss

The financial aspect of the transaction is somewhat like this:

COST: 8 hours at $1.25	$10.00
SELL: 5 hours, billed at cost plus 15 and 10%	7.91
Actual LOSS on job	2.09

Obviously, to handle such work profitably, either a rather high rate must be obtained for the labor alone, or else material must be supplied at a fair price.

Eliminating the Jobber

If a manufacturer can be convinced by an examination of figures like the above that his contractor is rendering him a really expensive service, and one which can only be paid for if he receives all the industrial's electrical patronage, then the jobber may be eliminated without further manoeuvering. And be it to the credit of the factory executives there are a few of them who admit that they make a good profit themselves and have no serious objection to seeing their contractors in turn make at least a living. But it is well to remember that a manufacturer can never know the true situation unless his electrical contractor has the courage to step into his office and present the facts which amply justify his selling supplies as well as labor.

In the majority of cases our initial acquaintance with a manufacturer comes through successfully bidding on a competitive job. Having secured a contract, we take advantage of every favorable opportunity to talk with responsible officials and executives of the plant. We not only strive to impress them with our ability and efficiency by careful execution of the contract, but we go still further and endeavor to secure complete information concerning their electrical problems and requirements; and usually such inquiry brings out some feature on which their regular electrical contractor has been lax in giving them the maximum service or value. It may be that he fails to rush men to the plant when an emergency arises; or perhaps he has shown ignorance of good engineering practice in the installation of equipment. Possibly he has charged all the traffic will bear,

and then added on a bit more for good luck.

In any event we generally find some way by which we can cement our friendship with the right executives and show them how we can give them a better deal than our competitor. Frequently we spot a newly installed motor. We thereupon work up a neat estimate of our costs for the same job, tabulating all labor and material, showing plainly our costs and our selling price. We next request the manager to insert beside each of our material items his own prices obtained by direct purchasing, and then have him place the price our competitor actually charged for labor opposite our estimated value. We finally ask him to add up his costs, and compare the total with the selling price which we would have charged him. Invariably, where the competitor has been working on an hourly price basis for labor and the factory has supplied the material, we can show a better selling price than the industrial obtained by divided purchase of labor and stock. And bear in mind that the hypothetical price we submit never bears less than cost plus 20 and 10 percent.

Another New Customer

The usual result of such a mathematical demonstration of our ability is another good account added to our list of customers; and once we get on the inside we intend to stay there by ceaseless attention to the best interests of our new found friends.

But the battle is only fairly started. In most cases we find that our predecessors on electrical maintenance had made only feeble attempts to prevent direct purchases from the jobbers, and had finally given up in despair, remaining quite content to get just the labor end of the deal. But such a condition should be distasteful to any contractor with an eye to maximum financial return from every customer.

Our first move to oust the jobber is planned with the secondary object of completely eliminating any further competition from the previous contractor of the company. We approach the proper factory executive with a proposition to do his work on a flat price basis for every job, except on such emergency work as cannot wait for an estimate.

We explain that a flat price:

1. Effectually eliminates all argument as to either the high cost or efficiency of labor.

2. Permits the officers to know in advance just how much a contemplated change will cost.

3. Places the burden of supplying labor, and the right material, exactly where it belongs—upon a contractor who is a specialist in the handling of both items.

Flat Prices

A flat price basis appeals to most business men. There are few executives who do not wonder, as they thumb over a bill for some trivial job done on time and material basis, if perhaps they are not being royally trimmed. They have an idea that day work is the contractor's heaven, wherein he is richly blessed, and the conclusion is drawn that no contractor will come out into the open and quote a flat price unless he is absolutely forced to do so. Consequently our proposal, coming out of a clear sky, impresses our factory friends. They come to the conclusion that we must know our business thoroughly if we are willing to estimate on all sorts of special jobs; they are relieved of any fears of being overcharged; and because we are so surprisingly open in our dealings they draw the inference that the contractor who had previously serviced them was getting much the best of things on his day work rates. That means the complete elimination of any further competition from that source.

But a flat price basis goes a whole lot further. We stress the feature of our plan whereby our price on every job is to include all labor and material, thereby saving the factory the expense of maintaining a diversified electrical stock. Of course the plant officials have been harboring the idea that direct buying has benefitted them. We promptly challenge the possibility of any such result by referring to the sample estimate we originally submitted and pointing out that we purchase conduit in carload lots, wire in 100,000 foot lots and other supplies in proportion, thereby drawing maximum discounts never attained by their relatively small volume.

In those cases where the conversation centers too strongly upon the merits of direct purchasing we make the most of every opening to turn the trend of the discussion back to our flat price proposal and its advantages. Managers are prone to look fondly upon their purchasing departments and honestly believe their purchasing agent is buying at rock bottom. So, rather than argue against a probably strong sentiment, we feel that good salesmanship calls for us to endlessly stress the advantages of our offer and at the same time ignore so far as possible any remarks by our prospect which favor the jobber.

At every opportunity we put forward our basically sound contention that larger discounts enable us to do jobs for a flat price, supplying the materials as well as the labor, and execute the whole by virtue of our efficient operation at a more economical figure than the factory previously obtained by the purchase of material and labor from separate sources.

In just one case have we failed to win our point—and in that company we now furnish every piece of electrical merchandise except motors and steel reflectors. The purchasing agent is aware that on this latter item his discount of 39 percent is just as great as ours. On this point the fixture manufacturers are at fault, not the jobber, in permitting the quotation of a fixed discount without regard to quantity of purchases. A graded discount schedule would give us an opportunity to make several hundred dollars a year more from this one account.

Fee Basis

We have still another step to take before we feel we are in a comfortable position. After a few months of flat price work we have a good knowledge of the average annual volume of electrical work in the plant as well as any favorable or unfavorable circumstances which affect the ease of doing their work. We then go to the management and play what might be termed our trump card. Briefly, we suggest adoption of a fee basis for handling all their electrical work. Under its provisions we are paid a flat yearly fee, the amount depending from year to year upon the annual volume, and in return we do such minor engineering as they require, act as advisers upon their electrical problems, and supply all labor and material required by them. These two latter items are billed the customer each month, at actual cost.

We base our fee for each year on the total volume of the preceeding year. Thus a plant which spent $5,000 last year would pay us a flat fee of from $500 to $1,000 this year—the amount depending upon how successful we are in selling them upon the idea. In other words, our fee ranges from 10 percent

to 20 percent of the previous year's volume.

This fee is paid us in two or four installments, as conditions warrant. Then, through the entire year we carry on the work, all such work being billed at actual cost of labor and material delivered on the job. Our fee includes our overhead and profit, both. Also, as a sales argument, we include under our fee the expense—which usually is small—of acting as advisors on the plant electrical problems. Major engineering on new work we prefer to leave to regular engineers, for two reasons. In the first place, it is expensive to handle, and a nuisance besides. In the second place, we have adopted a policy of not doing any engineering and as a result we are a whole lot more popular with the professional engineers than some of the other contractors around town who run engineering departments.

Bigger Fees

We do, however, attempt to have all new work included under our fee, for excellent reasons. First of all, the more work we do, the better our argument for an increasing fee each year. And in the second place, competition around Boston is on such a cut throat plane that most jobs are going for a low prime cost—or even less! Naturally we want to keep such competition out of our accounts.

The point is that if we can include new work under our fee, even though it increases our expense, it eliminates cut price tactics on the part of rival contractors who are trying to get the maintenance work away from us. Good accounts are hard to get and once we do get them we would be rather foolish not to sew them up as tightly as possible, even at the possible sacrifice of a little money.

Consider for a moment the advantages to all concerned of a fee system. From the point of view of the contractor, it first of all discourages competition from any source. When the salesman from a rival contracting office calls on the manager and is bluntly told that the company is under yearly contract with us he is left without any ground for further solicitation. That account is safely ours, for that year and probably for several years if we use good judgment.

Secondly, since all buying of material is done by us under our agreement, the jobber's salesmen receive the same discouraging statement that the manager handed out to the rival contractor's solicitor. Consequently, they mark that factory down as a fruitless field of effort and thereafter keep away from it.

Thirdly, the knowledge that several good accounts are securely ours for a full year is an incentive for us to avoid price cutting and to aim to get a good price on all other work. Ten five hundred or thousand dollar fees on the books at the start of the year is a nice little nest egg upon which to found a profitable year. It gives us a certain assurance in our dealings throughout the year, for we are in a position to refuse all work which does not offer us a margin of profit, and when competition on new work gets too keen, we can simply play a conservative game until prices rise to a profitable level once more.

From the point of view of the customer, he can readily understand that we are willing to do his work on a much narrower margin if we are to have his entire volume than we can when myriad small jobs are handed out in small uncertain portions.

Secondly, he realizes that we can give his problems much more impartial attention, because it is distinctly to our advantage to have as few emergency or replacement calls as possible. And, thirdly, he can feel much more at liberty to call upon us for engineering or other expensive service than would be the case if our work was received piecemeal and in such a manner that we never could know which job would be the last.

Efficient Installations

It is obvious, too, that where one contractor has supervision over an electrical system for a period of years there is the possibility of a continuity of effort and a development of an efficient installation never attained where every Tom, Dick and Harry has a part in the proceedings. Go into the average factory. What a conglomeration it is: open wiring, armored cable, conduit, moulding, all under one roof, all bearing mute evidence to the work of various contractors, each of whom had followed his own particular fancy on the job of the moment. And the wiring methods used are indicative of other equally variant, and even more unfortunate faults. For one contractor might use No. 2 cable in wiring to a motor. The next man who came along used No. 4 on an identical job. And still a third concluded that No. 0 was the thing when he had his turn.

As an example of the type of service which can be rendered a customer, we invariably start off our first contract year by making a layout of the plant showing every feeder, circuit, outlet, fuse, etc. Thereafter, when an extension is contemplated, or a few outlets are to be added, we can easily tell whether a new run must be made back to the cabinet; or whether an existing main can be tapped and its load increased; whether another light can be added to a present circuit; upon which side of a three wire system a new load should be added to properly balance; or any other information. And, be it noted, in this way all new work is done with proper regard to Code and to good engineering standards.

The Proposal

1. We have not made use of standard contract forms for industrial work because each plant has individual conditions which must be carefully considered and which might cause great variation from a standard contract. So far as lamp sales go, standard contracts are used. But we feel that the best way to handle the situation is as outlined below:

In every case we submit a proposal, on our letterhead, stating what our fee is to be and exactly what it is to cover. Then we have the client return to us, on his regular purchase order form, an order to do his work for a period of one year; and as a rule we request that he copy on this order the content of our proposal, word for word. Perhaps this method is slightly informal, but our lawyer assures us that we are in a secure legal position—and since every word on the order is typewritten and specific, we are, if anything, better off than if some standard printed form were used, the wording of which would be of necessity fairly general and subject as a result to varied interpretations.

We are never greatly worried over strict contract agreements because we are exceedingly cautious in choosing our customers. In the past two years our losses through poor credits have totalled less than fifty dollars. If we were less discriminating in our choice we might be more concerned with airtight contracts—but just at present we are dealing with people whose word is as good as their bond.

To make our position more solid we usually agree to install our own stock and equipment on the premises, thereby being prepared to handle ordinary emergency work or small jobs without delay. A typical list of material which we keep on hand at each factory is as follows:

1 Storage chest.
1 ½"-¾"-1" die stock.
1 1¼"-1½"-2" die stock.
1 ½" hickey.
1 ¾" hickey.
1 Martins bench and vise.
1 Oil can.
12 Hacksaw blades.
1 50 ft. snake.
1 100 ft. snake.
1 Jiffy cutter.
100 ft. ½" conduit.
100 ft. ¾" conduit.
100 ft. 1" conduit.
250 ft. No. 14-2 Armored Cable.
250 ft. No. 14-3 Armored Cable.
1000 ft. No. 14 R. C. Black.
1000 ft. No. 14 R. C. White.
500 ft. No. 12 R. C.
500 ft. No. 10 R. C.
500 ft. No. 8 R. C.
2 30 amp. 3 pole safety switches.
10 4 in. octagon boxes.
10 4 in. square boxes.
Miscellaneous condulets.
Adequate supply of fuses.
Kit containing assorted pipe clips, screws, nails, rawlplugs, solder, lugs, tape, TB's locknuts, washers, etc.

If the plant is standardized upon one or two types or sizes of reflectors we keep a few on hand with the above equipment.

Control of Stock

This material is not charged against the customer, nor does he accept it on consignment. We place it in his shop at our own risk and expense, keeping it under lock and key, of course. As material is used from this stock, requisitions are turned in by the workmen exactly as would be the case had they drawn their supplies from our central stockroom. Periodically, when the stock reaches an arbitrary minimum we replenish it.

There is a decided advantage to keeping this small store of essentials in each plant, for as a result we are enabled to care for minor jobs upon an efficient and favorable basis for all concerned. Every contractor is aware that nothing more surely irritates a customer than the sight of a workman standing idle, particularly on an emergency job where machinery is shut down and production disturbed until he can complete his work. Insofar as such loafing is caused by tedious waiting for tools or materials to come from a distant stockroom, we effectually stop it by having our own supply room on every client's premises.

The value of the stock, including tools, which we keep on the average job runs from $180.00 to $200.00. Where a considerable number of plants are being served this of course means a rather large investment. However, we found that in some cases it was this factor of installing our own stock on the premises which finally enabled us to obtain the account. Of course judgment must be used as to how much stock must be kept on hand. Of course where possible we keep only a few tools and minor odd stock on hand.

On a job of any size we of course ship out the entire allotment of material from our stock room, simply making use of the local stock for tools and such miscellaneous bits of material as are needed on the spur of the moment. The principal intention of the local stock is to facilitate the work on small jobs. Turnover consequently varies greatly, being entirely dependent upon the ratio of large to small jobs. While exact figures are not available, the average of all our accounts would properly run about four complete changes of stock per year.

As an important aid when we are striving to gain a foothold with an account, we make a point of finding out what jobber has been servicing the customer with the intention of enlisting his support of our program. If we find he is one to whom we regularly send a substantial volume of business we beard the lion in his den and the conversation takes this course:

"We are after the business of X company. You are selling them direct at present, but we feel certain that we can get their entire patronage to our mutual advantage, making a profit for ourselves and not taking a penny out of your pocket while doing it. If you will just suggest to your salesmen that they ought to keep away from that industrial, we promise to purchase from you everything we use in that plant. Isn't that fair enough?"

Co-operate With Jobber

If a contractor makes it a practice to concentrate his purchases upon the jobber in his district who does the most selling to industrials he can make his account sufficiently lucrative to that jobber that when a request like the above is made it will carry some weight. For by inference the jobber has the alternatives of complying with the contractor's wishes, or continuing his existing sales policy and losing the contractor's entire account.

Where the contractor's annual bill is $50,000 against the industrial's $4,000 there is little question that the jobber will cease active solicitation. Of course, the industrial may continue to send his orders to the jobber for a time but the fact remains that without the active competition of a jobber's salesman the contractor's arguments have a better chance of swinging the factory away from its old habits.

And now a word of criticism for some of the contractors. We have suc-

Collecting Under Hazardous Conditions

THE other day Electragist W. D. Gale, of Detroit, Mich., received this communication:

"Dear Sir: I called at your office twice. In regards to this bill. But havent been able to see you.

"Therefore i am mailing it back to you for adjustment. I claim this bill is out of reason & unjust. Inasmutch as I paid for this job once & baught & paid for all the wire & stock. Then your men come here & charge me all over again. & plenty besides. I think I have A right to kick.

"Your labor rate is to high.
"Your stock rate is to high.
"They have chged for to much stock.
"They have chged for stock that wasent nessary.
"What about this $2.50 for Inspection.
"What about this $2.00 for Incidentals.

"How could they have the nerve to say they could possibley put in 15 Hrs on this job. It looks to me as though they were so hungrey that after putting every thing into the bill that comes under the hed of electrical work They werent satisfied So they put in the rest for Incidentals & Inspection So if you will check this bill over & adjust it so it looks reasonable & return. You will receive our check at once."

P. S.—Nevertheless Mr. Gale collected the full amount of the bill.

ceeded in ousting a number of competitors from good time and material accounts solely because they were outrageous in their billing. No wonder an industrial buys direct from a jobber when he finds that his contractor charges excessive prices for material!

A number of contractors have made the grave error of charging large industrial accounts the same prices they billed their smaller customers. The point is just this: When a client calls up once or twice a year and has perhaps a hundred dollar job each time, he expects the contractor to visit the prospective installation, offer pertinent advice and suggestions, and then give it personal supervision as it progresses. The one item of personal attention is a considerable expense on a small job and high rates are accordingly justified to cover the overhead.

What Discount?

But a different situation exists in the administration of industrial work. A factory has a motor to install. Is the contractor entitled to charge the same high rates here that he does for a similar job from the twice-a-year customer? Most assuredly not. For in the course of a year the factory may have the equivalent of fifty or a hundred such small jobs. On that basis alone it is deserving of a lower rate, solely as a quantity discount. There is an added feature, however. On most industrial work the contractor makes an effort to send a workman who is familiar with plant conditions. Except in unusual cases the boss doesn't need to go near the job for he knows that his man can carry on the work without close supervision. As a consequence this type of work actually causes very little direct expense to the overhead of the business and should properly be given due recognition in the form of moderate charges.

Thus a contractor may be right in charging his ordinary customer full list prices on material and the long price on labor. But his industrial accounts ought to be handled on a basis more nearly approaching 15 and 10 percent, or 20 and 10 percent. We have been most surprised at the number of factories we have found where the contractor had not only beaten himself on the jobber problem but had later lost out to us simply because of a blind determination to charge too stiff rates.

As one manager expressed it, "We let the Blank Electric Company get away with rates of $1.95 an hour for labor because they said that was a standard resale rate and we didn't have enough work to justify hiring our own man full time. But we certainly wouldn't pay any contractor $6.00 for a switch we could buy ourselves for $3.25."

This same manager listened attentively to our sales talk, agreed with us that we deserved a fair profit in return for the service we promised to render—and ended up by letting us supply both labor and material on a flat 15 and 10 percent basis. Which made another nice account for us.

But how does the jobber actually make out! Does he gain—or lose? After all, he is in business not for love but to make money, and we as contractors have no right to expect any jobber to refrain from direct selling simply because we as a group don't like it. So long as a jobber makes more money by direct selling than by finding his outlet through contractors, then he is pretty nearly justified if he continues.

So, if jobbers are to deed the industrial field back to us we ought to have a sound economic reason. And we can boast of that reason if we can show that by leaving the field to us the jobber's annual sales are higher than he could obtain by direct selling. But that presupposes that contractors study salesmanship and go at their industrial accounts with a view to increasing their use of electricity and equipment in a manner that the jobbers cannot match.

Real Selling

Where the contractor is doing a real selling job every time he makes an installation there is little question but that the jobber benefits. In our case, we do the bulk of our buying from one large jobber. Consequently, when our efforts eliminate some other supply house from an industrial, our own jobber profits. And if by chance we happen to usurp one of his own accounts and succeed in switching the customer to our fee contract, he still gains; for, while we seriously try to cut unnecessary repair and emergency work to a minimum, we never fail to suggest replacement of old wiring, or changes which are beneficial.

As a rule the contractor who preceded us merely installed such work as the owners themselves deemed necessary. Consequently, the direct sales of the jobber were moderate in volume. We, however, constantly are on the watch for ways to improve the electrical system and feel duty bound to recommend any changes which we consider desirable. As a result, our industrial customers usually spend more for their electrical work than they previously did, so the jobber makes a nice net gain, even though selling through us. And let me add that our customers have no cause to regret their increased bills for electrical work, because they can see the benefits in more efficient production, decreased power bills, decreased hours of enforced shut down due to electrical troubles, etc.

Here again the contractors have failed, not only to keep the jobber out, but also to give the customer maximum results and themselves the maximum of business. So long as the majority of contractors preach on ways to cut the cost of a job, neglecting to point out how that also deprives the buyer of full value for what little money he does finally spend, the few progressive contractors are going to be blessed with an increasing clientelle.

Non Approved Jobs

W. M. SULLIVAN, electrical inspector of Charlotte, N. C., has discovered that the same types of violations occur regularly and the causes of non approval of installations can be charted in percentages. Out of 80 defective jobs in a period of 7 months, on which approval was withheld until violations were corrected, 49 were due to carelessness; 2 to lack of knowledge of the Code; and 12 were deliberate. The 12 deliberate violations, according to Mr. Sullivan, were caused by work being taken at a very low price or some unforseen condition arising which added to the cost of the installation which was not included in the contract, and the contractor cut the job in order to break even.

"Sixty-three of the 80 non approved installations were done by small concerns; 17 by larger ones," says Mr. Sullivan. "Four of the small firms who were credited with 28 of the 63 non approved jobs are now out of the electrical contracting business."

The Electrical Inspector*

What Should be the Relations Between the Electrical Contractor and the Inspector? What Qualities are Desirable in an Inspector? What are the Obligations of the Inspector Toward the Industry?

By VICTOR H. TOUSLEY,
Electrical Field Secretary, N. F. P. A.; former Chief Electrical Inspector, Chicago, Ill.

THE inspector's relations with the contractor, probably the most important of any inspector's obligations, are the most difficult of all satisfactorily and happily to define, and this situation offers the greatest opportunity for study. From the nature of the inspector's work he is brought into very close contact with the contractor and this contact frequently is of a disagreeable nature in that it entails criticism and condemnation work.

If I were becoming a new inspector, I would first lay out a tentative policy for my dealings with contractors in general, changing this policy as experience dictated. There are some general rules, however, which will immediately suggest themselves. As an inspector I must be firm in my stand but I must be fair and absolutely impartial. I must enforce the rules on all alike. Here, too, it is essential that I get the viewpoint of the contractor and understand his problems.

There is no individual who should cultivate the virtues of patience and tolerance more than the inspector, and in his dealings with the contractor it is always well to remember that some day the inspector may leave his position and take up some other form of work where the contractor may be his customer or client. Many an inspector has lost sight of this essential and has later regretted it.

A fault frequently developed in new inspectors, especially those invested with any form of governmental authority, is the fault of over-officiousness. An inspector who starts off with this fault is starting off entirely on the wrong foot. Nothing can be more harmful to the future of the new inspector than to retain this fault. It antagonizes and it does not get results. It destroys the opportunity for co-operation, but more than all else it destroys the opportunity for the development of a successful inspector. You do not enforce a law just because it is a rule, you enforce it because there is a purpose back of it. The inspector is no longer looked upon as a policeman.

The new inspector will sell the rule, he will sell himself and the position he occupies. And every time he applies a rule by selling it, he advances his standing in the industry.

An inspector who contends that he cannot carry on his work without bickering and trouble only admits and advertises his own weakness. In any organization of inspectors there are certain individuals who go on day after day strictly and rigidly enforcing the rules and yet rarely if ever running into trouble. If one or a group of inspectors can do this, any one can do it, and as a new inspector I would try to emulate this type of inspector.

An inspector, obviously, should encourage the contractor who is endeavoring to comply with the rules and should discourage those contractors who persistently violate the rules. And here again is a selling job for the inspector. In our experience as inspectors we have observed that those contractors who have remained in the business and prospered have, without exception, adhered closely to high standards of work. Among the contractors who have most miserably failed are the ones who tried to beat rules and lower the standard.

Inspector's Duties

The thing I can do as an inspector, therefore, is to lend my efforts and ability to the building up of the safe use of electricity. Do you say that as an inspector you are only interested in seeing that the work complies with the rules? If that is all I am interested in as an inspector, I am indeed a very poor inspector. In order to be a good inspector I must be a leader. If I go on the job as an inspector, I must assist in the formation of rules which give the customers an opportunity to take advantage of the many uses of electricity available both at the present time and in the future. It is my privilege and duty as an inspector to point this out to the contractor and also to the owner if he is available. The contractor may object to this because he may feel that I am butting in on his job. However, if the contractor doesn't look out for the

Victor H. Tousley

Victor H. Tousley, for twenty-five years associated with the Department of Gas and Electricity, Chicago, Ill., has just been appointed to the position of electrical field secretary of the National Fire Protection Association, succeeding W. J. Canada. Mr. Tousley was chief electrical inspector of Chicago for the past fifteen years and has become exceedingly well known throughout the industry. He was graduated from the American Institute of Technology as electrical engineer, is the author of several books on electrical construction, is a member of the Western Association of Electrical Inspectors, and of the Electrical Committee of the N. F. P. A.

The duties of the Electrical Field Secretary keep him in constant and intimate communication with electrical inspection departments throughout the country, in connection with securing of greater uniformity in the application of the Code.

This article, being an address made by Mr. Tousley while he was still an inspector, is especially interesting in view of his new position, since it shows exactly how he will approach the problems of the electrical industry.

—THE EDITOR.

*Part of an address before the Michigan Association of Electrical Inspectors, February 6, 1928.

owner's interests and merely figures the job too closely, as a great many contractors do, he is very likely to cut out the necessary requisites of a good installation and restrict the customer's use of electricity. I am the representative of the owner. I should be glad to show both the contractor and the owner how it is to their mutual interest to put in better service. If the contractor does not install three-way switches where he should, it is my duty to point this out to him. This may lead to some friction with the contractor, but after the matter is explained to him I think I would have the co-operation of the contractor in giving the public better and more comprehensive installations.

What Is Old?

Last week I sat in a meeting and listened to a very stinging criticism of the inadequacy of wiring of old houses and the thought came to me, "What is an old house?" The houses built a few years ago are today "old" in the sense of wiring, only because the uses of electricity have developed so rapidly. Will not the houses we are building today be "old" houses in ten years from now? Is it not then our duty as inspectors to use every effort to encourage the wiring of the houses of today so that they will not be old houses in ten years from now? It may be you will say that this is not a proper duty of an inspector. Now that we have become a part of the industry it would seem that we are bound to use our efforts to develop that industry, also realizing that, with the hazards that exist in the old buildings of today from the ever-increasing use of cord due to the lack of sufficient outlets, we are also justified from a safety standpoint.

A great deal of the difficulty we come in contact with as inspectors is due to the fact that proper installations are not made at the time the houses are wired. As an inspector I know this and the customer does not know it. Usually when the contractor completes the job, his interest ceases, while on the other hand, the owner has to live with the job every day and night of his life, so it is my duty and privilege to impress on both the contractor and the owner the advantage of an adequately wired job.

In all classes of business, in all walks of life, the people engaged therein are divided into two classes—lifters and leaners. The lifters are builders—are constantly striving to build up. I would resolve as an inspector to be a lifter, a builder. I would align myself with the crowd that are building and doing constructive things. The lifters are constantly trying to improve conditions and workmanship. The leaners are trying to tear town, to destroy, to do as little as possible. They are parasites on the profession and contribute nothing to it, they retard progress. I would attempt to educate these leaners, the contractors who do shoddy workmanship, use cheap material and put as little wiring in a house as possible. I would give the customers a greater opportunity to use electricity by doing a better wiring job. I would encourage manufacturers who are making high class products — for the manufacturers are also divided into two classes, the same classes as inspectors and contractors. You will find manufacturers who are building and contributing to the profession. You will also find manufacturers who are parasites. I would encourage the use of high class manufactured products and I would discourage the use of low class manufactured products. Naturally I might incur the enmity temporarily of both contractors and manufacturers who are not living up to the higher standards, but I would expect this, and knowing my policy is correct, would carry on. We are sometimes prone to speak with a sarcastic tone of voice and blame all our ills to the curbstone contractor—the cheap contractor. As an inspector I would feel responsible to see that proper rules are put into effect so that the cheap contractor would have to give the owner the same high class job that the high class contractor attempts to give.

Written vs. Oral Agreements

Although generally the terms of a written contract are not affected by verbal agreements, the court in a recent case took a different view as shown below.

IN the case of Webb vs. Cobb, 288 S. W. 897, it was disclosed that a contractor entered into a written contract with the owner whereby the former agreed to do certain work in accordance with the plans and specifications furnished by a named architect. The sum specified was $8,250, to be paid in installments of $1,000 on completion of the work in the first story, $1,500 for the second story, $1,700 for the third story and $4,000 for the fourth story. It was, further, agreed that all of the work was to be done in a workmanlike manner and subject to the usual conditions.

After the execution of the contract the contractor commenced work but after a few weeks discovered, according to his testimony, that the spacing and openings in the steel work were irregular and not uniform, and that other defects in the building necessitated his doing extra work. When this condition was discovered and it was seen that it was impracticable and impossible to follow the plans and specifications the contractor explained the situation to the owner. It was verbally agreed to abandon the written contract, and a new oral contract was made. This oral contract provided that for the same price stipulated in the written contract the contractor should furnish the labor for making the installation, without plans or specifications, under the directions of a superintendent to be employed and furnished by the owner. Also, the owner agreed to pay an additional charge for making the installations properly fit.

Later the owner refused to pay the contractor in accordance with the oral understanding on the contention that the law is well established that a written contract cannot be varied by verbal agreements.

However, the lower court held the contractor entitled to recover payment based upon the oral agreement. The higher court upheld this verdict and quoted:

"The rule that parol evidence is not admissible to contradict, vary, or alter the terms of a written instrument does not exclude the introduction of evidence to show that a written contract has been modified, altered, or in fact entirely rescinded by a subsequent oral agreement, the evidence not being for the purpose of varying the terms of the written instrument, but to show that it has become inoperative either in whole or in part by reason of a subsequent and independent agreement. It is immaterial how soon after the execution of the written instrument the new agreement was made."

Estimating Methods---XI

Switchboards
Feeders
Apparatus Installation
Equipment Boxes
Switches
Motor Controllers

By ARTHUR L. ABBOTT
Technical Director, Association of Electragists, International

EVERY wiring installation in which there are feeders requires a main distribution center. On the smaller jobs this takes the form of a panelboard, and the method of making the labor estimate in this case was discussed in the last installment of this series. When the installation is fairly large best practice calls for the main distribution center to be a switchboard.

The unlimited variety found in switchboard design makes it impossible to state any but approximate labor data without going into very great detail, and it is only in the exceptional cases that the practical estimator can take the time to make a detailed calculation of this labor item.

TABLE 12—SWITCHBOARDS
Approximate labor per terminal to erect and make all connections.

Ampere Capacity of Terminals	Labor—Hours per terminal
30	.5
60	.8
100	1.2
200	1.4
400	2.0
600	3.0
800	5.0
1000	6.0

The following figures are intended to apply to a type of switchboard which is commonly used as the main distribution center in wiring installations. This is a live face board made up of slate or marble panels 1 1-2 in. thick, about 90 in. high and 24 in. to 26 in. wide. Ordinary knife switches are used for control of the feeders with perhaps a few air circuit breakers for heavy power feeders. The voltage is 110 or 220 volts. A large pull-box is mounted directly on top of the board.

The labor may be considered under two main divisions: erecting the switchboard and connecting feeders. For the erection of the board complete a fair allowance is 12 hours per panel. This will include unloading from truck, moving to the switchboard room, erecting the steel frame, panels and bus work. The weight of one panel with subbase of the dimensions stated is about 250 lbs. (Slate or marble weigh approximately 170 lbs. per cubic ft.) For panels much smaller or much larger, there will be some difference in this part of the labor, though the total hours will not be in direct proportion to the weight handled. The connecting labor may be computed according to the data to be discussed later under the heading of apparatus installation.

As a still more simple method, the labor may be computed from the data in Table 12 which gives the total labor per terminal, each lug for connection to a wire or cable to be considered as a terminal. It must be remembered that such data as this can at best be only an approximation.

Assume a switchboard of the general type described, the service to be 115-230 volts three-wire for lighting, and 230 volts three-phase for power; the board to be built in three panels and to have the following equipment:

3-pole knife switches	2 — 30 amp.
	4 — 60 "
	4 — 100 "
	4 — 200 "
3-pole circuit breakers	1 — 200 "
	1 — 400 "

The mains feeding the board require three 600 amp. terminals for lighting and three 400 amp. terminals for power.

Using the first method the labor estimate will be:

	Hours
3 panels — 12 hr. each	36.0
Connecting to terminals.	
6 — 30 amp. — .25 hr. each	— 1.5
12 — 60 " — .4 hr. each	— 4.8
12 —100 " — .5 "	— 6.0
15 —200 " — .6 "	— 9.0
6 —400 " — .9 "	— 5.4
3 —600 " — 1.4 "	— 4.2
Total	66.9

Or with the second method, basing the labor on the terminals alone, the estimate is:

Terminals		Hours
6 — 30 amp.	.5 hr. each	— 3.0
12 — 60 "	.8 "	— 9.6
12 —100 "	1.2 "	— 14.4
15 —200 "	1.4 "	— 21.0
6 —400 "	2.0 "	— 12.0
3 —600 "	3.0 "	— 9.0
	Total	69.0

If the neutrals of the lighting feeders are connected direct to a neutral bus and the switches for these feeders are made 2-pole instead of 3-pole, there will still be three terminals to be connected for each feeder and the result by either of the above methods would be unchanged.

It is very desirable that the contractor keep a record of the labor on every switchboard he installs, as in this way he can soon acquire a general knowledge of the labor made necessary by various special features.

It is not wise to attempt to go into too great detail in making the labor records. No man can apportion his own time accurately to operations which consume only a fraction of an hour each. A simple record of the total time to install a switchboard complete is of much value. Subdivisions of the labor which can usually be made without much difficulty are: unloading and moving to the switchboard room; setting channel base and erecting frame; erecting panels; assembling bus work; making all connections. Each record should of course include outline specification for the switchboard.

Apparatus Installation—General

Switchboards and panelboards may be considered as special classes of apparatus for which special labor cost data is required. There is a great variety of other equipment including surface mounted cabinets and boxes, externally operated switches, the more common types of motor control apparatus, etc., which are all of the same general class as far as the installation labor is concerned.

All equipment of this kind must be mounted or secured in position in some way, and additional time is required for handling. Handling includes moving the equipment, lifting it to position, and sometimes unboxing or uncrating. Other conditions being unchanged, the handling and mounting time will depend upon the weight and number of pieces to be handled. This portion of the labor will quite evidently be variable, depending upon the distance the apparatus must be moved, therefore only average times can be stated.

TABLE 13—Labor to Handle and Mount Apparatus

Weight in Lbs.	Time in Hours—Mounted on		
	Wood	Brick	Concrete
25 or less	.6	.9	1.4
50	1.0	1.4	1.9
75	1.3	1.7	2.3
100	1.6	2.1	2.6
150	1.9	2.5	3.1
200	2.2	2.8	3.3
300	2.6	3.2	3.7
400	3.0	3.5	4.0

For a surface mounted box alone, not containing any apparatus requiring connections the handling and mounting time is the only item of labor. An externally operated switch requires connecting as well as handling and mounting, and many types of apparatus also require some time to be spent in testing. Average times for handling and mounting apparatus of various weights are given in Table 13 for mounting on walls of wood, brick and concrete. If one or more pieces of equipment are to be mounted on a wood back-board, this in turn to be secured to the wall, the apparatus is considered as being mounted on wood and a separate labor allowance should be made for installing the back-board. Connecting labor is given in Table 14. From these two tables, if the necessary addition is made for such testing as is involved, the total labor may be computed for installing any ordinary piece of apparatus.

TABLE 14—Labor to Connect Apparatus

Ampere Capacity of Terminal	Hours per Terminal
30 — Binding Screw	.06
30 — Soldered Lug	.25
60	.4
100	.5
200	.6
400	.9
600	1.4
800	2.2
1000	2.8

TABLE 15—Labor Installing Equipment Boxes on Walls

Area of Back of box—Square Feet	Time in Hours—Mounted on		
	Wood	Brick	Concrete
2 or less	.5	.8	1.3
3	.7	1.0	1.5
4	.8	1.2	1.6
5	1.0	1.4	1.8
6	1.2	1.6	2.0
8	1.6	2.1	2.6
10	1.8	2.4	3.0
12	2.1	2.8	3.3
14	2.3	2.9	3.4
16	2.4	3.0	3.5
18	2.5	3.1	3.6
20	2.6	3.2	3.7
22	2.7	3.3	3.8
24	2.8	3.4	3.9

Applying the data in Table 13 to wall mounted cutout boxes of standard Code thickness and common dimensions gives results as shown in Table 15. This data may be used when it is definitely known just how a box will be installed.

TABLE 16—Mounting and Connecting 250 Volt Fusible or Non-Fusible Externally Operated Switches

Amp.	Poles	Time in Hours—Mounted On		
		Wood	Brick	Concrete
30	2	.7	1.0	1.5
No	3	.9	1.2	1.7
Lugs	4	1.0	1.3	1.8
30	2	1.3	1.6	2.1
With	3	1.7	2.0	2.5
Lugs	4	2.1	2.4	2.9
60	2	1.6	1.9	2.4
	3	2.2	2.5	3.0
	4	2.8	3.2	3.6
100	2	2.5	2.8	3.3
	3	3.6	3.9	4.4
	4	4.8	5.2	5.7
200	2	3.7	4.0	4.5
	3	5.3	5.7	6.2
	4	6.8	7.2	7.8
400	2	5.2	5.6	6.2
	3	7.4	7.9	8.5
	4	9.5	10.0	10.6
600	2	8.2	8.7	9.3
	3	11.6	12.2	12.7

An externally operated switch as commonly used requires no testing before connections are made and if the weight is known the labor may be computed from Tables 13 and 14. Table 16 gives the data for the complete installation of all common sizes and types of 250 volt switches, including in one figure for each switch the handling, mounting and connecting time.

No distinction is made in this table between fusible and non-fusible switches. The labor to make the connections will of course be the same in either case, and the difference in the weight to be handled and supported would make only a slight difference in the total labor.

Motor Control Apparatus

The variety of motor-starting and speed regulating apparatus is so great that it would be impracticable to attempt to compile installation labor data covering all types. A few of the more common types will be discussed and for any fairly simple type not covered here the estimator may approximate the installation time by making use of the fundamental data in Tables 13 and 14 and adding a reasonable allowance for whatever testing may be involved.

For convenience in use it is desirable to combine in one unit the time for mounting the starter or controller, making all connections of wires or cables at both the starter and the motor, and testing out the completed assembly to determine the direction of rotation of the motor and insure that everything is operating properly. All of the motor starter and controller data presented here is intended to include all these items. In no case is any labor on conduit or pulling in wire included. The length of conduit being no fixed quantity, the length must first be determined and the labor should be estimated from the data previously presented. Tables 3 and 4 should be used for the conduit work where they will apply, otherwise use Table 1 with an additional allowance for fastenings as per Table 2. See Table 6 for wire labor.

(*Continued on page* 39)

TABLE 17—A. C. Motors—Mounting and Connecting 30 Amp. Motor-Starting Switches

Time is included for making connections at motor and testing for direction of rotation. No time is included for installing conduit or wire.

Type Switch and Motor	Time in Hours—Switch Mounted On		
	Wood	Brick	Concrete
2-Pole, single phase	2.0	2.3	2.5
3-Pole, 3-phase or 3-wire 2-phase	2.6	2.9	3.4
4-Pole, 4-wire, 2-phase	3.3	3.6	4.0

Obsolete Laws Retard Electrical Progress

By HARRY B. KIRKLAND
Supervisor, Wiring Development, The Society for Electrical Development, Inc.

THE author of this article is a nationally known figure in the electrical industry. He is devoting all his time to assisting the state and local legislation throughout the country in the interests of all groups of the industry.

Through Mr. Kirkland's untiring efforts, legislation has been passed to enable many cities throughout the country to adopt suitable ordinances which permit of satisfactory inspection.

Few men in the country today have a more intimate knowledge of how to go about obtaining sound legislation.—Editor.

Harry B. Kirkland

EVEN a casual glance at the electrical industry shows that 1928 is to be its greatest year. What other industry in the United States can show the need of a billion dollars in new capitalization? And what other industry could possibly have the same bright promise of obtaining this capital without difficulty? The New York Legislature, working in conjunction with the savings banks of the State, has just shown its confidence in public utilities as a whole by passing legislation which will enable the banks to invest every tenth dollar in utility bonds.

Considering the relation of electrical financing to that of all other utilities combined, this means that about every twentieth dollar of all of the New York savings deposits—amounting to more than four billion dollars—can be invested in electric utility securities. When has any industry had a finer endorsement of its security or confidence in its future?

But in the moment when we are taking satisfaction from such healthful signs, it may be just as well to ask if the industry is overcoming some of its plain difficulties. Certainly none of these could be any plainer than the necessity of better inspection of electrical installations everywhere throughout the country. Of course, this is an old and familiar story, but it gains new emphasis from current developments. Pick up almost any newspaper and see if it does not contain an item somewhere about a disastrous fire or the loss of life due to "defective wiring".

It has been one of the duties and privileges of our organization to run down a great many of these printed statements. Whenever we see an item of this kind in the paper, and we regularly scan thousands of newspapers for this very purpose, a letter is immediately sent to the chief of the local fire department asking whether the accident in question really is traceable to defective wiring. In a surprising number of cases the answer is a simple "no", or some totally contradictory explanation. It may have been a lighted cigarette or some common product of every day carelessness. But "defective wiring" is an easy description that has come to be entirely too freely used.

Electricity is the safest illuminant and the safest heat that is known today. The Society for Electrical Development recently had the privilege of being instrumental in preparing for the Tenement House Commission a brief wherein it was proven that electricity is the safest known medium for cooking. Investigation proved that only a small per cent of fires was directly traceable to electric cooking. After investigating a large number of fires and accidents of so-called electrical origin, it has been found that not more than 10 to 15 per cent of such reported accidents or fires were due to defective electrical installations.

But even this small percentage is quite a serious matter. If we should assume that such a proportion of all electrical wiring was in any way questionable, it would be a little startling at first glance, but the probabilities are that the figure would not be high. Undoubtedly the solution of this whole important problem rests with the proper supervision of electric installations.

Lack of Inspection

During the writer's recent nationwide trip, during which he covered a territory of nearly 10,000 miles and visited eighteen cities and towns, he called on many city officials and appeared before large gatherings of electrical contractors, electragists, representatives of power companies, jobbers, etc. In many instances he encountered a deplorable lack of inspection service. In fact, the inspection service now in existence does not cover the country, and what is existent is wholly inadequate.

In many sections the electrical contractors are handicapped by obsolete rules. I have personally encountered laws throughout the country that were passed during the first period of electrification, let us say ten or fifteen years ago. While these cities seem content to struggle along with old-fashioned methods, contractors in other sections of the country are reaping the harvest of increased prosperity through up-to-date laws.

It may be said with truth that half the electrical world does not know what the other half is doing. The only way this condition can be corrected is through education. It would certainly be helpful if the inspector in Dallas, Texas, for instance, could know what the successful inspector in Portland, Maine, is accomplishing—or vice versa.

Right here is where the code promotion unit of The Society for Electrical Development can be of service. What our organization seeks is the adoption in its entirety of the National Electrical

Code in a manner prescribed by the Uniform Ordinance, plus such special rules as may, in the judgment of the local authorities, be deemed necessary to thoroughly protect life and property. Our sole desire is to be helpful, not critical, not dictatorial.

While our offers of assistance are sometimes met with resentment and suspicion, and even open antagonism, yet in almost every case it has been possible, by cooperative effort, to show that our organization is here to do a mutual work. I am convinced that lack of understanding for the most part lies at the bottom of the differences between the utility, the inspector, the contractor and the public.

Need for Uniform Ordinance

The need of the Uniform Ordinance is apparent everywhere and this need increases daily. Fortunately a large number of municipalities are realizing this need and have met the situation by legislation that will result in decreased loss of life and property, which, in the end, means increased prosperity for all concerned.

In a wide contact with this whole broad problem, I have come to the conclusion that we must look deeper than the personalities of officials or ordinary practices of construction and inspection. We have got to get at the basic cause—the obsolete laws that continue to be the bane of this great industry.

While it is true that for a long time the industry believed that the inspectors were careless and resentful of our offers of assistance, still I, personally, find that these officials are cooperating readily and intelligently—once they are shown the light and realize that better inspection service means increased revenue for all concerned. I have found an increasing interest and understanding not only among industry people, but also among municipal officials and civic groups of the importance of standardization of codes and ordinances.

The men in the industry who are really getting somewhere agree that where certain individuals are not inclined to play the game with the rest of the authorities at first, they eventually come around to a sane point of view, and it is up to the industry to keep everlastingly at the task. This country has outlived the age when autocratic actions will be tolerated by the public. The laws of the community must be enforced, but the self-made and administered rules of an individual, be he officer or employee of the town or city can never be sanctioned.

I am inclined to believe that the burden of education and cooperation really lies with the industry, and the whole subject should be approached in a spirit of constructive effort. The average city inspector is a busy man and not commonly well equipped, in an unfortunate number of cases, for his position by technical training. He naturally is inclined to be sensitive about suggestions of better ways to fill his job. The man without adequate preparation always surrounds himself with obstacles put in the way of any one who might intrude on his prerogatives. So it is necessary for the industry to approach such officials with an open mind and a helpful purpose.

Cannot Compare American Wiring Practices With European

THE extent to which Americans use electric service is so much greater than the use by Europeans that it is impossible to compare our better wiring systems with those in use over there, according to G. M. Sanborn, president of the Sanborn Electric Company, of Indianapolis. Mr. Sanborn, who is one of the country's largest contractors, spent three and a half months in Continental Europe in 1927 and made a personal investigation wherever he went of the wiring methods employed.

G. M. Sanborn

Upon his return to this country Mr. Sanborn stated that it was inconceivable that the wiring methods used in Europe could be successfully introduced in North America.

"We have all heard for many years of the cheap wiring of Europe," said Mr. Sanborn, "and comparisons have been made between the European methods and our more costly ones, and the question has been raised as to whether or not we could adopt profitably the cheaper methods of Europe.

"I am unable to see how any one can compare the European system with ours, primarily for the reason that the capacities used in Europe appear to be very limited. The small amount of light and power used could be wired almost any way and operate fairly well.

"The buildings that I observed were not only inadequately lighted; but pathetically under-lighted, and in the main, wired on the surface with cords and cables of one sort and another, old time link fuses in inaccessible places, appearing much as a one night temporary installation in this country—hardly as well done.

"Electric lighting in Europe seems to be on much the same basis as their heating of buildings. They use little heat and little light.

"While it is true that the systems in use in Europe seem to work, I am of the opinion that if Europeans used the same quantities of light that we use, and consequently had the same capacities to deal with, that we have, and had a public demanding constant service, they would find it necessary to install their work under practically the same conditions as we install it."

Owners Insist on Outlets

"We load 'em up with convenience outlets," says John Hayes of Bollinger & Hayes, architects, Toledo, Ohio, about recent house plans his firm has drawn. "We do this because we found we were being criticised by our clients. Months after homes were completed and occupied they came in and complained that there were not enough convenience outlets. So now we put 'em in, figuring that $25 or $30 more on the wiring is amply justified by the satisfaction of the owner."

Chats on the National Electrical Code

A Monthly Discussion of Wiring Practice and Questions of Interpretation, Presented with a View Toward Encouraging a Better Understanding of the Industry's Most Important Set of Rules

Conducted by F. N. M. SQUIRES
Assistant Chief Inspector, N. Y. Board of Fire Underwriters

Fuse Protection With Storage Battery Chargers

There are at present no requirements in the Code for the proper precautions against excess currents which may be experienced in connection with battery charging outfits. No specific rules are laid down and yet currents heavy enough to do considerable damage may be encountered and should be guarded against.

A fully charged 100 amp. hour storage battery will deliver 300 or more amp. on a short circuit which is enough to melt the copper wires ordinarily used for connections.

When storage batteries are used to supply power to a radio set, rule 3702-o requires fuse protection and when such batteries are used with small isolated (farm lighting) plants, rules 4001-a and 4003-a and b require fuses. Also, rule 1002-c calls for protection for generators. But the charging outfits seem to have been forgotten.

Take, for instance, a constant potential system fed from a motor generator set to which the batteries are connected in parallel, the machine being capable of charging twenty batteries at once. The leads from the charging panel to the batteries are generally of No. 6 or No. 4 wire with no fuse protection. Should all the batteries be on charge and nearing the end of the charge and a short occur on any one of the leads, all of the batteries would deliver current to this short and this current would be in the vicinity of 5000 amp., enough to do considerable damage. It should, therefore, be required that each set of leads be protected by a fuse or circuit breaker located on the panel.

It should also be borne in mind when connecting the small chargers capable of charging only a single battery that it should be so connected as to be protected by the fuse required in rule 3702.

Concentric Knockouts

Electrical cabinets and cutout boxes are now on the market in which concentric knockouts are used. This idea is very handy for the contractor as it allows considerable latitude in the size of conduits for which stock boxes may be made. That is, a contractor may, with a fair degree of safety, order a stock box and be sure that he will have enough knockouts and of sufficiently varied sizes to take care of the average job.

In a space which with single knockouts would provide room for only about 25 knockouts, the manufacturer is able to offer a total of about 70. This certainly is of great convenience to the contractor. But what has this to do with the hazards of the job? Let us consider one of the safety features of the National Electrical Code,—grounding.

To insure the safety of a conduit job, we must maintain the integrity of the ground throughout the entire system and see to it that the electrical continuity or bonding is not weakened nor broken.

The concentric knockout offers a hazard against this safety measure. Let us suppose a multiple knockout of 1-2 in., 1 in., 1 1-2 in., 2 in. and 2 1-2 in. is provided and the 1-2 in. hole is used. In opening the center hole there is a possibility that the whole ring is loosened. But whether it is loosened or not the conduit may enter at a slight slant and in tightening down the locknuts strain is put on the ring as the locknuts do not bridge across the whole 2 1-2 in. ring so as to rest on the wall of the box itself. Then there is a vibration of the building to be contended with. Most buildings, especially factories, or those in cities, are subject to considerable vibration and this in a short time would tend to loosen the outer rings of the knockouts. Of course, once these become loosened the grounding is affected.

Why should we not then stick to single knockouts or limit the difference in sizes in such a way that the locknuts and bushings would be sure to bridge the whole opening?

Switchboards Used as Wall of Transformer Vault

It is a well known fact that high tension currents are dangerous for persons to come in contact with and are liable to cause trouble when crossed on to a low tension system.

The rules have always been very strict about keeping these high voltages out of reach and away from low voltage circuits. But recently there has been an endeavor by an ice manufacturing company and its contractors to break down the safety measures. High tension current has been brought into a transformer vault which is constructed according to Code requirements, with the exception of one side wall, in the place of which the low tension switchboard has been used. That is, the back of the board is directly in the transformer vault and the front of it is in the ice plant proper.

Besides the objection that the low tension connections are in the transformer vault is the very serious violation of a one inch marble or slate switchboard being used in place of 6 in. of concrete or 8 in. of brick wall. Imagine what would happen to that switchboard if a nice transformer fire occurred in back of it! Even if it did stand up under the blast of heat, would it still remain intact very long after a stream of cold water hit it?

Let us not be led into accepting such a weak spot in transformer vault construction but let us insist that the vault be really made fireproof and let us keep the low tension busses and connections out of the vault and away from the danger of becoming crossed with the more dangerous voltages.

Fixture Supports

Let us take a look at rule 1403 (f).

Here is the way it reads:

"Where a gas pipe, outlet box, plate or other fitting which will provide proper support is required by this Code or is present, the fixture shall be attached thereto; otherwise the fixture shall be attached to a 7-8 in. block fastened between studs or floor timbers and flush with the back of the lathing, or if this method can not be employed a wooden base block not less than 3-4 in. in thickness shall be provided."

Simple but Difficult

What does all this mean anyway? It reads as simple as a primer, and when inspectors try to enforce it, it is as difficult as third year Latin. It is difficult to enforce, simply because a code can never contain specific rules to cover every detail of electrical construction, and supercede the engineer in his rightful field.

Here we have a case where the inspector must use his own judgment.

An inspector, like any other person engaged in the world's work, must assume responsibilities or duties, whatever term in the English language will fit to the case. Anyway, the inspector is up against this problem: Suppose a contractor installed a bar hanger with a fixture stud, is this approved to support a ceiling fan? It may be as good as some methods used to support ceiling fans, but is a long way from being approved. The inspector may throw us his hands and say:

"I am up against it; the Code does not say that every screwed joint in a fan stem or body should have a set screw or cotter pin in it; once upon a time we did use set screws or cotter pins and a great many fans are still so installed. Neither does it say the fan must be hung on an 'I' bar or piece of 2 by 4 or a lag screw hook. No. The Code just simply throws the job of designing supports on the architect, engineer, contractor, wireman or inspector!

"Someone of this group has got to design the supports. Now, then, if a contractor puts up a slim bar hanger for a fan support, or a 200 lb. fixture and tells us that we have got to pass it because he says it is all right, and our Code does not state otherwise, all that we have to do is go ahead and pass it. But, we can also write the architect, owner and occupant, and tell them that in our opinion the support will be unsafe, and that it is up to the engineer on the job and not our Code to design safe supports for 200 lb. loads. Honest contractors welcome this form of procedure because it teaches architects and owners just what a contractor has to contend with in figuring a job. It also proves that a fire and accident code can never be so complete as to take the place of the engineer in the architect's, or his own office.

There are many other little things like fixture supports that no code can take care of. Fixture supports, nails, screws, toggle bolts, expansion bolts, load factors, etc., might have some meagre space in the Code, but anything that we do should not tend to increase the number of lazy or indifferent people in the electrical profession.

Colleges are turning out electrical engineers by the thousand, and they need other jobs than peddling bananas. If fifty members of the electrical committee are going to do all the interior electrical construction engineering of the entire United States, some of these poor graduates will starve. The contractors claim that they cannot all enter the electrical contracting field, so let us have a heart and leave something out of the Code that will occupy their time.—George Welman.

Motion Picture Shows

The motion picture machine enclosure for a modern picture theatre is a rather complicated affair. Every time I see one I think of the pictures showing the control room of a submarine and wonder how a single operator can work all of the gadgets.

The booth may contain as many as four standard high intensity arc lamps for the motion picture machine, and three or more spot and effect lamps, each lamp taking as much as 100 amp. The negative carbon is copper clad, and the positive carbon metallic carbon cored type. The arcing distance between carbon points is as much as one in. Both carbons are automatically fed with a small motor and turned as they burn.

The lamp house is lined with "transite" board, and the automatic shutters are made of the same material. The top of each lamp house is generally ventilated through a separate metal flue.

The design and working of modern projection booth equipment should be studied very carefully in order to provide suitable safeguards. In the first place, we can start off with a basis of a fire resistive booth with automatic self-closing shutters and doors. A very simple method of booth construction was satisfactory in the old days, but now we have openings as large as 6 square feet in the front of booths. Such openings are necessary for the operator to follow the actors and provide proper lighting effects on the stage. We might suggest that the spot lights be located in a separate enclosure, but this would require another operator, so we have to design automatic closing shutters as large as 6 square feet for the front of a booth. Certain picture theatre people claim that the entire front of the booth should be open—or nearly all of it. The situation is getting down to a point where we may require booth fronts and shutters that are approved by the Underwriters' Laboratories, which will be a somewhat new field for the Laboratories to enter. We have seen horizontal sliding steel doors for the large openings in some theatres. These non-automatic shutters are not at all satisfactory and are not approved.

The next thing that we have to watch is the wiring for the high intensity arc lamp which requires 100 amp. This means at least a No. 1 gauge rubber covered feeder for each lamp and a feeder for the entire projection room, based on the total number of projectors that may be lighted at one time; say two motion picture machines and three spot lights. Of course the two picture machines are not used when the spot lights are used, but the arc is struck in them and they are kept burning while the spots are being used, so that there will be no interruption in the show. If 150 amp. fuses are used to protect each lamp circuit, No. 00 gauge wire should be used.

Ventilation

The next thing that we should remodel is the ventilation of the booth. First, we have to supply fresh air; not a little bit, but a large amount. The present rule requiring 50 cu. ft. per minute is ridiculously too low. 500 cu. ft. would be more like what is necessary. The screened slots in the bottom of the booth are antiquated and inefficient. Most of the fresh air enters through the openings in the front wall of the booth that are used as projection openings. What we need is a forced draft duct system entering near the floor of the booth, and provided with dampers that may be regulated by the

operator. Next we need a real blower, (not a "dinky" 1-4 H. P. forge blower) to take the heated air out of the top of the booth; and in addition to this system of ventilation, we need a separate exhaust for the metal flues that extend down to the lamp houses. A modern motion picture theatre is just as complicated as any other theatre; in fact most of them show living actors on the stage as well as the pictures on the screen, and therefore introduce a combination of engineering features that does not exist with the theatre that is not equipped with motion picture apparatus.

No modern motion picture theatre should ever attempt to install a projection booth or a wiring system without having the entire equipment designed by a competent electrical engineer, who knows and does not have to learn while the job is being installed. Naturally, this throws the booth design out of the architect's hands, in so far as details are concerned.

The small theatre that is content to use the 70 amp. or 25 amp. low intensity arc lamps need not be worried until they expand their equipment, but when they do take on the high intensity 100 amp. equipment, they should bear in mind that booth and wiring needs to be re-designed. They should not simply install some of the new machines in an old booth and cut large openings in the front of the booth to obtain better spot effects.

We trust that contractors will bear this in mind when remodeling motion picture theatres. We think that an opening as large as 6 square feet should be a standard class "A" shutter, arranged to drop by gravity into a closed position in a fraction of a second. Sheet metal shutters of large area should be submitted to the Underwriters' Laboratories for approval. The small shutters over openings less than 1 square foot in area made of No. 10 gauge metal will be accepted as heretofore.—George Welman.

Ice Manufacturing Plants

The question came up about mounting ammonia pressure gauges on the same switchboard panels with electrical instruments. The pressure gauges are supplied by small pipes 1-4 in. or 3-8 in. in size, and it would be necessary to extend these pipes from the wall to the gauges, probably through some of the wires on the back of the switchboard. We ruled that even though this practice was not a direct violation of the National Electrical Code, it did violate the principle of the Code, in reference to locating switchboards in hazardous places, (see rules 1202-a, 805-h, definition of switchboards page 9, rule 206-a No. 1 and article 32.) None of these rules are very definite concerning water pipes, gas pipes, etc., behind switchboards.

Rule on Switchboards

Rule 1301 (a) covers the situation in a somewhat indefinite manner. The rule reads: "Switchboards shall be so placed as to reduce to a minimum the danger of communicating fire to adjacent combustible material." Ammonia gas is combustible when decomposed into its natural elements of hydrogen and nitrogen, and the electric arc furnishes sufficient heat to decompose the gas. Escaping gas may occur from leaks in the pipe, or from arcs back of the switchboard that might burn a hole in the ammonia pipes. In view of this, we required the ammonia pipes to the gauges to be enclosed in a tight compartment made of approved asbestos board. This was only permitted because the owners claimed that lack of space prevented them from placing the gauges in another location; a rather lean excuse, but about as consistent as many of the things inspectors hear every day. The switchboard in this case was supplied by low tension current at 440 volts potential, and if we remember correctly, expert opinion declared that low tension equipment was permissible in ammonia compressor rooms, because the air gap between parts of different polarity would not be broken down from moisture laden ammonia gas; (ammonia gas as we all know has the property of absorbing a large percentage of water).

We are not quite sure that low tension equipment will not break down, and will not be convinced until actually proved by laboratory tests. Anyway, the National Electrical Code does not ask for special safeguards in ice plants equipped with low tension apparatus. In plants where high tension equipment is used (voltages over 600), we require a switch capable of breaking the entire connected load to be located outside the building, so that in the event of a broken ammonia pipe all of the high tension current may be disconnected from the interior electrical equipment. There is quite a serious hazard in our opinion if ammonia compressors are used in theatres, public assembly halls and office buildings. The compressors are generally located in poorly ventilated rooms in the basements, and no means are provided for disconnecting the current outside the rooms, except the main switches. Opening the service switch would leave the entire premises without current. Ammonia compressor rooms should have independent ventilation to the outside of the building. Tight fitting fire doors should be provided so that no gas could escape into the buildings proper and switches should be provided outside the rooms so that all current may be disconnected in case of emergency. These suggestions should be followed, regardless of the voltage used when ammonia compressors are located in places of amusement or public occupancy. CO2 compressors are safer than those using ammonia gas, even though higher pressures are used.—George Welman.

Estimating Methods—XI

(*Continued from page* 34)

The most simple form of motor control apparatus is the hand operated switch used for starting an A. C. motor at full line voltage. The installation labor for this type of starter is given in Table 17. Starters of this type may have a two-position switch arranged to shunt out the running fuses until the motor comes up to speed, or they may be provided with time-element protective devices such as thermal cutouts. The number of connections being the same in either case, the labor will also be the same.

An oil circuit breaker is sometimes used as this type of motor starter. A small addition must be made to the time on account of handling the oil and the slightly greater weight, and if the breaker is equipped with overload relays requiring adjustment this will also require additional time.

Time Payment Plan

The central station-contractor cooperative time payment plan has been extended by the Central Hudson Gas and Electric Corporation to include industrial and commercial wiring. The central station already has a cooperative housewiring time-payment plan in operation and the success of the idea has encouraged the company to extend it.

Biggest Elec
by Manufa
trist

Grand Ballroom Where Convention Will Be Held

THE biggest electrical exhibit ever held of electrical materials and supplies for electrical contractors and contractor dealers will be held at the Hotel Stevens, Chicago, August 6-10, in connection with the annual convention of the Association of Electragists, International.

According to plans divulged by the exhibition committee, all the leading manufacturers will have booths in which the latest and newest electrical equipment will be shown.

The exhibit will be held in the beautiful grand ballroom of the convention hotel, and in the adjoining lobby, and will actually be a part of the convention, since the meetings are also to be held in the grand ballroom. Booths for the manufacturers, as shown in the accompanying chart, will be constructed under the balcony of the ballroom and the exhibits will be open to the convention throngs from 9 a. m. until 6 p. m. each day, except during the sessions.

Under the plan as shown there will be 53 booths, and the arrangement is such that an unusually attractive display can be featured by each manufacturer.

J. C. McQuiston

J. C. McQuiston, publicity manager, Westinghouse Electric and Manufacturing Company, is chairman of the exhibition committee. The other members include: A. L. Atkinson, advertising manager, General Electric Company; Martin A. Oberlander, wiring supply sales manager, Graybar Electric Company; A. S. Merrill, general sales manager, Appleton Electric Company; A. E. Tregenza, vice president, Chicago Jefferson Fuse and Electric Company; Samuel A. Chase, Westinghouse Electric and Manufacturing Company; and T. W. Merrill, of the Chicago office, Westinghouse Company, alternate.

The ball room where the meetings and exhibit are to be held is shown in the accompanying picture. It is considered one of the most beautiful rooms in the world, and it is also one of the largest rooms, and will seat four thousand people at a convention meeting. In the photograph shown here the regal atmosphere is caught rather well, although it can not do justice to the magnificence of the color harmonies, the blazing crystals, the gleaming mirrors, and the parquet floor that catches and reflects every light.

The room is large enough to hold a football game and all the crowd and, indeed, it is planned to hold the international tennis matches within the ball room next winter. The floor was especially constructed so it can hold the heaviest machinery, motors, and similar equipment, which may be brought in on a service elevator so large that a freight boxcar could be brought up on it and wheeled onto the ballroom floor.

Meals are served in four dining rooms with rates as follows: Japanese Lunch Room, breakfast 45 cents, luncheon 65 cents, dinner $1.00; Colchester Grill and Oak Room, breakfast 60 cents, luncheon 85 cents, dinner $1.50; Sunday dinner, $2.00; main dining room, luncheon $1.25, dinner $3.00.

The 1928 convention is the 28th annual meeting of the Association of Electragists, International. The first convention was held in Buffalo in July 16, 1901. Forty-eight delegates attended the first convention, contrasted

Coming!
Chicago
August 6-10

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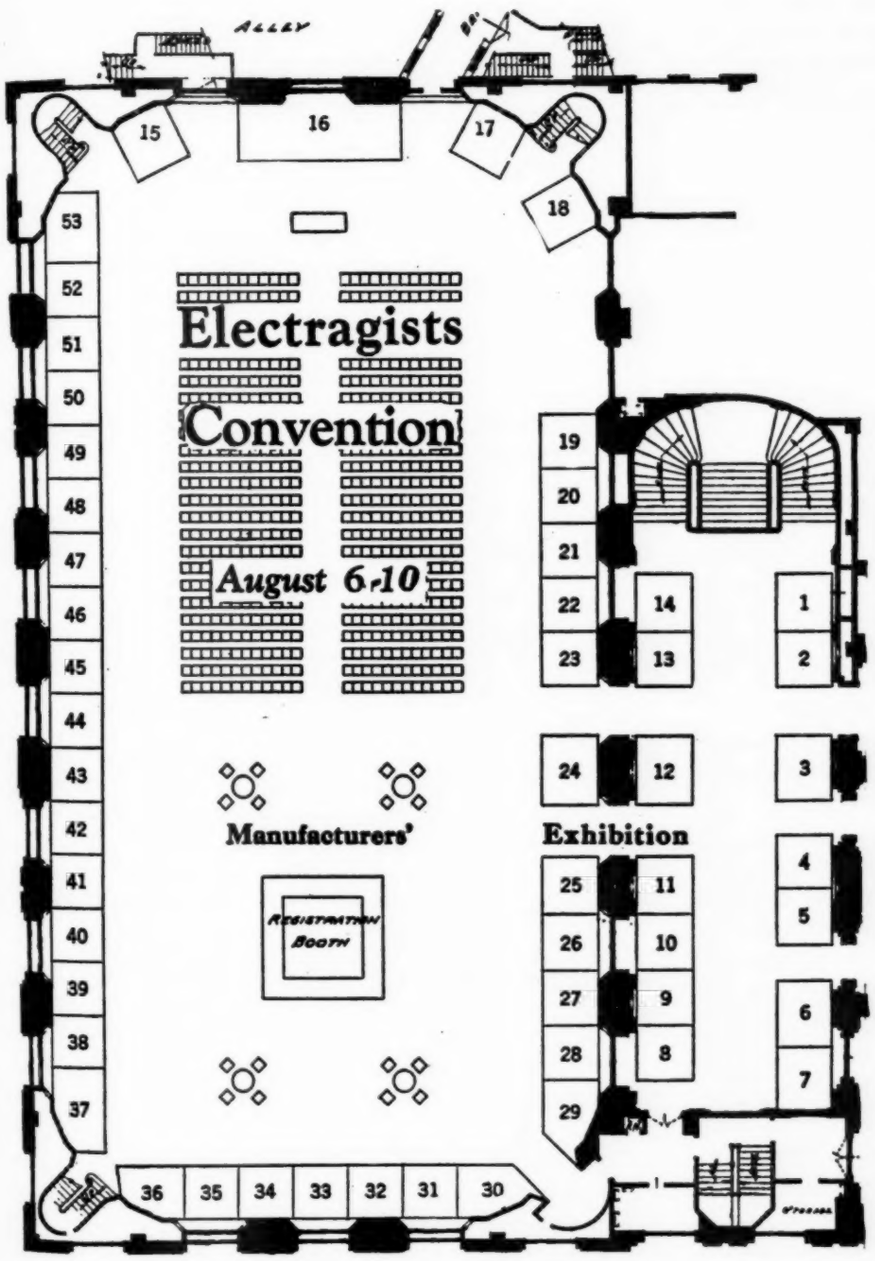
lanufacturers for Elec-
trist Convention



Floor Layout of Electragists' Convention

with the 3,000 delegates expected in Chicago for the 28th meeting.

Reservations for rooms during the convention are already coming in to the Association of Electragists, International. The Hotel Stevens is large enough to take care of every delegate, as well as hold the convention meetings and the exhibit. The rates for rooms are shown:

TABLE OF ROOM RATES FOR ELECTRAGIST CONVENTION

No. of Rooms Available	Single Rate	Double Rate
201	$3.00	$4.50
822	3.50	5.00
976	4.00	6.00
201	5.00	7.00
207	6.00	6.00
358	7.00	7.00
135	8.00	8.00
57	9.00	9.00
43	10.00	10.00

Each of the 3,000 rooms is a beautifully furnished outside room, equipped with private bath, circulating ice water, closet space and bed reading lamp.

Study Market Development

The new board of directors of the Electrical League of Toledo, including E. F. Baertschi, Harold F. Barrow, Carl H. Felker, H. C. Scannell, and E. F. Schmidt, is planning a cooperative program of market development for 1928. Mail and personal selling of the Red Seal plan will be continued as it has been found that this work has produced the greatest visible results, since it has increased outlets by 40 per cent and has paved the way for the greater sale of wiring, fixtures, and appliances. The success of the electrical home exhibition last year has created a demand for another exhibit this spring, which is being planned.

Drives on rewiring in the past have not been so successful, and the board will consider reasons for their failure and methods of obtaining greater success in the future. One reason for the failure of the past drives, according to Toledo leaders, appears to be because the industry has not found the means of working together to develop the rewiring market, and the board is consequently considering spending the year on inter-group education in the belief that you have to sell yourself before you can sell the public.

The Electragist

Official Journal of the
Association of Electragists—International
S. B. WILLIAMS
Editor

Over Two Thousand at Chicago

The Chicago committee in charge of the annual Electragist convention this year is expecting an attendance of at least two thousand and probably nearer three. When one remembers that the record Electragist Convention attendance was around one thousand it is difficult to believe that this year will go so big. But when one begins to study the set-up of the Chicago convention committee and the zeal and enthusiasm with which the sub-committees are working, it soon becomes apparent that the Chicago boys are not talking for effect. They know!

Chicago has a reputation for doing things on an elaborate scale and their unbroken record of successes makes it impossible for them to think in small numbers.

The speakers' program is being rounded out and in calibre of men and quality of expression of opinion the 1928 convention should outshine even the St. Louis convention.

It will be a convention that no progressive contractor can afford to miss. Now is the time to begin making arrangements.

Come to Chicago in August!

Find a Boss

Owen D. Young said recently that men cooperate only when they have to, and somebody else put it equally tersely when he said that the only way for an organization to function and to grow was to instil fear into the members.

When we first look at these two expressions we are shocked and disturbed, but the more we look the more we are convinced they are true. Nations, states, cities, churches, societies, associations—all are cooperative efforts and all have the same fundamental problems.

In cities, for instance, the people pay taxes and pay promptly, not because they want to but because of the penalty if they do not. Associations that have penalties are equally successful in collecting their taxes or dues.

Cities have certain laws of right conduct. Break them and you are in trouble. Associations similarly have laws or rules, but they can never be enforced unless there is some penalty for transgression.

In order, however, for a city to mete out penalties it must have police power and that is delegated to it by the people over whom it is exercised. Associations, to be successful, must operate in the same way. The membership must delegate police power to some strong, honest, intelligent and respected man who will keep them in line and make them behave.

Some associations have tried this illegally in an effort to restrict free competition. That always fails. There are right ways and wrong ways. The right way never imposes anything unnatural to the laws of economics and sound business judgment. The wrong way imposes a second evil upon the community on the theory that two wrongs make a right. The right way seeks to eliminate what is wrong by strict application of the laws of economics.

It takes a strong man, however, to make other men pay their bills promptly, collect what is owing them, be good business men, etc. When he is found, however, he is worth all he is paid. Every local contractors' organization should look for such a leader—a boss.

The Ceiling Fixture?

What's back of all this debate on whether or not ceiling fixtures should be used in the home? Manufacturers of fixtures and illuminating engineers agree that they should be used, but they can't agree on what constitutes a proper ceiling fixture. And right there it seems is the answer to the debate.

The public is drifting more and more away from overhead lighting in the home, and particularly in the living room, to portable lamps. It isn't a question of cost either of fixture or current, as is apparent, but rather one of decoration and comfort.

Why can't the same idea that makes portable lighting so popular be introduced more widely into our fixed lighting equipment? Overhead lighting has a place in the home and no amount of portable lighting can rightfully take that place. It would be a serious mistake for overhead lighting to disappear from the home.

If the fixture manufacturers who are so capable in producing style equipment, and the illuminating engineers who are authorities on illumination and some interior decorators who are past masters in the theory of home building psychology, could get together around a table, a way could

surely be found to make good illuminants attractive and to make attractive fixtures good illuminants.

We are never going to get anywhere by having the two camps stay apart—except to lose more overhead fixture business.

Substandard Fight Progressing

The latest recruit to the ranks of the cities making war on substandard electrical materials is New York. A committee headed by Joseph C. Forsyth is now studying the situation in order to determine the best method to pursue to rid the city of dangerous material.

There is some talk of trying to improve the situation by educating the various dealers to the dangers of the substandard products. Undoubtedly much good would come from such an effort, but unfortunately people are so made that far too many of them cannot be led but have to be forced to behave. The more we study the situation the more we believe that the sale of electrical commodities must be regulated as to quality.

In the initial discussion of this activity in New York the creation of a testing laboratory was proposed. There are, of course, for the moment, certain legal reasons why a local laboratory seems advisable. Such considerations however, will lose weight when the standards of Underwriters' Laboratories become American Engineering Standards, and that should not be a long way off.

It would be unfortunate if every city were to set up its own laboratory. Local laboratories would soon break down national standards, besides setting up expensive machinery which would be unnecessary.

An early start by New York to eliminate the sale and use of substandard electrical products should be a wonderful impetus to other cities to engage in a similar activity. Therefore, more power to New York!

A Suggestion for Future Code Revisions

Within a few days the 1928 National Electrical Code will be approved. Probably no other edition of the Code had such a difficult time coming into existence. While a number of changes have been made they are but a fraction of those proposed.

The struggle to revise the Code, while not as productive of progressive changes as many had hoped for, has not been without compensation. It is of no small consequence that so many people have given serious thought to the Code. More people have been interested in the Code during the two years leading up to the current revision than ever before—and that is worth while.

Also—and this is really serious—it has become apparent that our present Code revising machinery is obsolete. When the task was less complicated it functioned smoothly enough, but now it is unequal to the task.

There are three things we must always keep clearly in mind in Code revision work. The first is ease of use of the Code; the second is eradication of all ambiguity and the third is keeping pace with progress.

If the Code is to be made easy to use it must not be a large volume, but small and compact. It must be written in clear understandable language. It must be logically arranged.

The Electrical Committee of the N. F. P. A. is too large to do such a detail job. The job of writing the Code is a one man job. In that way it is possible in the shortest length of time to get a consistent Code.

Where different article committees take charge of the writing of separate chapters it is almost impossible to avoid overlapping and ambiguity.

The Electrical Committee is largely composed of men who have served on the committee for years. Their background and experience in Code revision work is too valuable to the industry to suggest that they make way for new blood. Nevertheless, being local men, they naturally are not in the same position to bring to the committee the national thinking necessary to keep the Code abreast of the times as an individual whose job it was to circulate about the country learning all the local viewpoints. The lack of broad, national thinking on part of the Electrical Committee in the past was one of the reasons why the Code was becoming more and more subjected to variations in local ordinances.

Therefore, as a suggestion for the Electrical Committee and the industry to consider, we propose that the 1930 edition of the Code be written by one man; that he have for his guidance and assistance a very small committee of councillors; that the rough draft after passing the councillors be submitted to a small number of committees, much the same as present article committees, but much smaller in membership, for suggestion and criticism and that having incorporated such suggestions the final draft be submitted to the Electrical Committee for approval or rejection.

We would also suggest that the Electrical Committee is too large and that it would function more effectively and efficiently if it were only half as large. The suggestion by some groups that they must have larger representation on the Electrical Committee is not in the best interests of the work of the Committee.

Furthermore, it is our suggestion that the proposed article committees, and more especially the Electrical Committee, should definitely understand that their function is entirely one of passing upon principle and not one of dotting "i's" and crossing "t's".

It is our firm conviction that if the 1930 Code is built as suggested the industry will have a more usable Code, one that is more nearly up to date, one that is reasonably clear of ambiguity. We believe that such a procedure will save the industry thousands and thousands of dollars now spent in numerous long drawn out committee meetings. We are certain that when the Electrical Committee finds it must confine its attention and activities to policy and principle and forego the pleasure of working as grammarians, that the industry will profit by their undivided attention.

Therefore, in the interest of effectiveness and economy we urge the consideration of the above proposal.

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British Columbia:	C. H. E. Williams, 509 Richards St., Vancouver.	J. C. Reston, 579 Howe St., Vancouver.
Alabama:	J. R. Wilcox, 2017 First Ave., Birmingham.	D. B. Clayton, Am. Trust Bldg., Birmingham.
Arkansas:	Ed. Appler, 901 Central Ave., Hot Springs.	Clem. Dresse, 316 Louisiana St., Little Rock.
California	H. H. Walker, 1323 Venice Blvd., Los Angeles.	C. J. Geisbush, 610 Cotton Exchange Bldg., Los Angeles.
Colorado-Wyoming:	Matt Whitney Colorado Springs.	P. Harry Byrne, 965 Madison St., Denver.
Florida:	W. S. Monroe, 308 Cass St., Tampa.	Charles E. James, Fort Pierce, Fla.
Illinois:	Edgar Rice, 207 East Broadway, Alton.	John Kuhlemeyer, 1317 S. Sixth Ave., Maywood.
Indiana:		Frank Argast, Hatfield Elec. Co., Indianapolis.
Iowa:	Earl N. Peak, 1603 W. Main St., Marshalltown.	J. R. Payton, 13th & Walnut Sts., Des Moines.
Kansas:	L. M. Atkinson, 116 E. First St., Pittsburgh.	Harry Hagler, Salina.
Louisiana:	Robley S. Stearnes, 628 Carondelet St., New Orleans.	I. G. Marks, 323 Chartres Street, New Orleans.
Maryland:	A. C. Brueckmann, Keyser Bldg., Baltimore.	W. D. Young, Calvert and Franklin Sts., Baltimore.
Michigan:	W. F. Fowler, c|o Barker-Fowler Electric Co., Lansing.	E. P. Blackman, c|o Motor Shop, Battle Creek.
Missouri:	Charles J. Sutter, 1303 Pine St., St. Louis.	W. F. Gerstner, 120 North Second St., St. Louis.
New York:	A. Lincoln Bush, 906 6th Ave., New York City.	H. F. Janick, 235 Berlin St., Rochester.
North Carolina:	H. R. Bouligny, P. O. Box 534, Charlotte.	W. P. Christian, Greensboro.
Pennsylvania:	W. V. Pangborne, 1927 W. Montgomery Ave., Philadelphia.	M. G. Sellers, 1202 Locust St., Philadelphia.
South Dakota:	Mark J. Hurlburt, Chamberlain.	Frank Shuff, Yankton.
Tennessee:	R. L. Clift, Memphis.	J. A. Fowler, 118 Monroe Ave., Memphis.
Texas:	T. L. Farmer, 1809 Main St., Dallas.	J. W. Read, 715 Capitol Ave., Houston.
Wisconsin:	L. W. Burch, 202 E. Wash'n Ave., Madison	

List of Local Associations

STATE AND CITY	LOCAL SECRETARY	STREET ADDRESS
ALABAMA		
Birmingham (C)	J. R. Wilcox	2017 First Avenue
ARKANSAS		
Fort Smith (C)	Edward Ryan	Ft. Smith Lt. & Trac. Co.
CALIFORNIA		
Fresno (C)	Clyde L. Smith	1162 Broadway
Glendale (C)	W. L. Hyde	154 S. Brand Blvd.
Long Beach (L)	V. Ringle	So. Cal. Edison Co.
Los Angeles (C)	Helen I. Mikesell	Chamber of Com. Bldg.
Oakland (C)	Laurence R. Chilcote	Hobart & Webster Sts.
Pasadena (C)	H. W. Barnes	1331 N. Lake Ave.
Sacramento	L. W. Sherman	910 Ninth St.
San Francisco (C)	E. E. Browne	522 Call Building
Santa Ana (C)	O. N. Robertson	303 N. Main St.
Eureka (C)	J. H. Hilfiker	1717 H Street
COLORADO		
Colorado Springs (C)	Matt Whitney	208 N. Tejon St.
Denver (C)	E. C. Headrick	89 Broadway
Pueblo (C)	E. F. Stone	So. Colorado Power Co.
CONNECTICUT		
Hartford (C)	A. A. Angello	473 Park St.
Waterbury (C)	D. B. Neth	107 West Main St.
Bridgeport (C)	L. E. Finch	529 Newfield Bldg.
DIST. OF COLUMBIA		
Washington (L)	Norman H. Barnes	Potomac Elec. Power Co.
FLORIDA		
Bradentown (C)	W. S. Stewart	W. & S. Elec. Co.
Daytona Beach (C)	C. Leotah Benson	324½ S. Beach St.
Deland (C)	C. W. Allcorn	132 No. Florida St.
Fort Myers (C)	P. K. Weatherly	Thompson-Weatherly Co.
Indian Riv. Dist. (C)	I. A. Paige	Vero Beach
Jacksonville (C)	W. A. Harper	108 W. Bay St.
Miami (C)	E. A. Robinson	118 N. W. First Ave.
Orlando (C)	Solon M. Lantz	833 E. Concord
St. Petersburg (C)	Gardiner Blackman	
Tampa (C)	P. F. Lyons	P. O. Box 992
GEORGIA		
Atlanta (C)	B. K. Laney	73 Walton St.
Savannah (L)	Sylvan M. Byck	Byck Electric Co.
ILLINOIS		
Chicago:		
Electrical Contractors' Association	J. W. Collins	230 No. LaSalle St.
Master Elec. Contractors' Association	F. J. Boyle	304 S. Halsted So.
Decatur (C)	Earl Weatherford	114 East William St.
Granite City (C)	Paul S. Pender	1916 Edison Ave.
Peoria (C)	L. B. Van Nuys	238 So. Jefferson Ave.
Rockford (C)	Donald Johnson	106 North Second St.
Springfield (C)	A. D. Birnbaum	916 West Cook St.
Wheaton (C)	E. C. Krage	133 West Front St.
INDIANA		
Lake County (C)	A. R. Irwin	3461 Mich'n Av., Ind. Har.
Indianapolis (L)	A. W. Kruge	2405 E. Tenth St.
Michigan City (C)	Walter A. Sassodeck	913 Franklin St.
Muncie (C)	Harry McCullough	113 W. Howard St.
South Bend (C)	R. A. Frink	1338 Howard St.
IOWA		
Cedar Rapids (C)	H. E. Neff	94 First Ave., West
Davenport (C)	Louis F. Cory	510 Brady St.
Des Moines (C)	Floyd J. Moeckly	521 Hubbell Bldg.
Fort Dodge (C)	J. A. Paul	16 So. Twelfth St.
Sioux City (C)	E. A. Arzt	211 Fifth St.
Waterloo (C)	R. A. Cole	Cole Bros. Elec. Co.
KANSAS		
Salina (C)	C. G. Loomis	814 Cedar St.
Wichita (C)	P. W. Agrelius	Wichita
KENTUCKY		
Lexington (C)	J. H. Brock	235 East Main St.
Louisville (C)	C. L. W. Daubert	921 South Third St.
Paducah (L)	K. H. Knapp	c|o Paducah Electric Co.
LOUISIANA		
New Orleans (C)	I. G. Marks	323 Chartres St.
Shreveport (C)	R. L. Norton	620 Marshall St.
MARYLAND		
Baltimore (C)	A. P. Peterson	515 Cathedral St.
MASSACHUSETTS		
Boston (L)	Edward G. Jay	164 Federal St.
Lowell (C)	George A. Ryan	79 Middle St.
Haverhill (C)	H. W. Porter	14 West St.
Malden (Medford, Everett and Melrose) (C)	H. J. Walton	c|o Malden Electric Co.
Springfield (C)	C. S. Foster	220 Dwight St.
Worcester (L)	John W. Coghlin	259 Main St.
MICHIGAN		
Detroit (C)	N. J. Biddle	112 Madison Ave.
Grand Rapids (C)	T. J. Haven	1118 Wealthy St., S. E.
Kalamazoo	E. R. Hummel	1121 Seminary St.
Saginaw (C)	E. T. Eastman	209 Brewers Arcade
MINNESOTA		
Duluth (L)	Morris Braden	c|o Minn. Pow'r & Lt. Co.
Minneapolis (C)	W. I. Gray	209 Globe Building
MISSOURI		
Kansas City (C)	Walter C. DeBold	City Bank Bldg.
St. Louis:		
Electragists' Ass'n (C)	W. F. Gerstner	120 No. Second St.
Electric Employers' Association (C)	G. L. Gamp	Wainwright Bldg.

STATE AND CITY	LOCAL SECRETARY	STREET ADDRESS
NEBRASKA		
Lincoln (L)	George Ludden	139 N Street
Omaha (C)	E. H. Brown	1818½ Harney Street
NEW JERSEY		
Elizabeth (L)	A. G. Otis	Broad Street
Jersey City (C)	John Nairn	38 Oakland Ave
Long Branch (C) (Asbury Park and Red Bank)	Austin Hurley	Campbell Ave., Long Branch
Newark (C)	Paul H. Jaehnig	435 Orange Street
Paterson (L)	George Pape	43 Fair Street
Philipsburg (See Lehigh Valley, Pa.)		
Union City (C)	Frank Zeller	328 48th Street
NEW YORK		
Buffalo (L)	Samuel S. Vineberg	307 Electric Bldg.
Brooklyn (C)	H. F. Walcott	60 Third Avenue
Jamestown (C)	Henry M. Lund	309 Main Street
Nassau-Suffolk (C)	Henry T. Hobby	55 Front Street, Rockville Centre, L. I.
New York City:		
Section No. 1 (C)	Walter Knapp	207 East 43rd Street
Independent (C)	John J. Bauer	100 East 45th St.
Metropolitan (C)	George W. Neil	96 Beekman St.
Niagara Falls (C)	E. M. King	515 Niagara Street
Rochester (C)	Theo. T. Benz	278 State Street
Rochester (L)	Henry F. Burton	89 East Ave.
Schenectady (C)	Richard Spengler	421 McClellan Street
Syracuse (C)	Fred P. Edinger	802 East Water St.
Utica (C)	W. C. Ballda	228 Genesee Street
Westchester Co. (C)	Jack Lalley	14 Mnr. Hse. Sq., Yonkers
Yonkers (C)	Louis Mayer	485 South Broadway
OHIO		
Akron (C)	E. C. Rishel	540 East Avenue
Canton (C)	H. S. Hastings	301 New Vickery Bldg.
Cincinnati (C)	J. F. Riehle	1642 Cedar Ave.
Cleveland (C)	F. T. Manahan	Chester Twelfth Bldg.
Columbus (L)	O. A. Robins	1242 Oak Street
Lorain (C)	A. B. Walton	3150 E. Erie Ave.
Toledo (C)	Fred C. Dunn	Builders' Exchange
Dayton (C)	Clarence Carey	1107 South Brown St.
Massilon (C)	F. D. Mossop	c|o Mesco Electric Co.
Northern Ohio (C)	R. A. Wentz	Elyria
OKLAHOMA		
Pawhuska	C. G. Sego	Pawhuska
OREGON		
Portland (C)	J. R. Tomlinson	51 Union Ave., N.
PENNSYLVANIA		
Altoona (C)	Walter Bracken	Leechburg
Allegheny Valley	E. G. Jackson	12 West Third Street
Du Bois (C)	C. E. Blakeslee	12 E. Long Ave.
Easton (L)	H. Clark Kreider	Arcade Bldg., Center Sq.
Erie (C)	R. D. Goff	11th and French Sts.
Lehigh Valley (C)	A. W. Hill	Bethlehem
Philadelphia (C)	M. G. Sellers	1202 Locust Street
Pittsburgh (C)	D. A. Fleming	518 Empire Bldg.
Wilkes-Barre (L)	Leon N. Sell	Town Hall
RHODE ISLAND		
Providence (C)	H. E. Batman	36 Exchange Place
SOUTH CAROLINA		
Charleston (L)	J. P. Connolly	141 Meeting Street
SOUTH DAKOTA		
Sioux Falls	H. W. Claus	326 S. Phillips Ave.
TENNESSEE		
Chattanooga (L)	P. W. Curtis	725 Walnut Street
Knoxville (L)	Jerry G. Cason	303 West Church St.
Memphis (L)	J. J. Brennan	12-16 So. Second St.
Nashville (C)	J. T. Shannon	c|o Electric Equip. Co.
TEXAS		
Beaumont (C)	J. A. Solleder	Houston & Bolivar Sts.
Dallas (C)	P. B. Seastrunk	2032 Commerce St.
Houston (C)	J. W. Read	715 Capitol Avenue
UTAH		
Ogden	B. Kristofferson	2249 Washington Ave.
Salt Lake City (C)	R. E. Folland	Newhouse Hotel
VIRGINIA		
Lynchburg (C)	J. L. Fennell	c|o Fennell & App
Norfolk (L)	A. W. Cornick	200 Plum St.
Richmond (C)	E. M. Andrews	15 N. Twelfth Street
WASHINGTON		
Seattle (L)	P. L. Hoadley	Seaboard Building
Spokane (C)	William Stack	W. 1121 Cleveland St.
WEST VIRGINIA		
Wheeling	Peter J. Erb	1414 Eoff Street
WISCONSIN		
Green Bay (C)	V. E. Grebel	531 S. Broadway
Madison (C)	Carl J. Marsh	710 Beaver Bldg.
Milwaukee (C)	E. H. Herzberg	1604 Wells St.
Milwaukee (L)	J. S. Bartlett	415 Carpenter Bldg.
Racine (C)	Joseph J. Small	1910 Linden Ave.
CANADA		
Montreal (C)	George C. L. Brassart	674 Girouard Ave.
Toronto (C)	J. A. McKay	302 Excelsior Life Bldg.
Vancouver (C)	J. C. Reston	579 Howe St.
Winnipeg (C)	Fred Ball	300 Princess St.

(C) designates exclusively Contractor-Dealer organization.
(L) designates an Electrical League.

APRIL ACTIVITIES

California Electragists Hold District Conventions

Credit and Accounting Discussed by Southern Division; Merchandising and Distribution by Northern Group

CALIFORNIA Electragists held conventions by divisions, the northern group meeting in Sacramento March 10; the southern division at Santa Barbara, March 17. Richard Neustadt, Retail Merchants Association, San Francisco, was the leading speaker at the March 10th meeting, discussing problems of merchandising and distribution, and endeavoring to answer the problem of rising selling costs.

Small merchants, said Mr. Neustadt, can compete favorably with chain stores and large merchants, because the savings made by large organizations are partially offset by disadvantages. The cost of maintaining big business on a big scale is very expensive, he said, adding:

Large Volume Costly

"We think of size as synonymous with success. It isn't. On the basis of profit to capital invested and sales the small stores are doing much better than large stores." Large volume does not necessarily cut costs; it only cuts costs if it is followed through to the end. As an example of volumitis he told of an establishment with a volume of $1,000,000, a margin of 35 per cent and a cost of 30 per cent, realizing a net profit of 5 per cent or $50,000; to get the same profit on a 34 per cent margin with the same cost, the concern must get a $1,333,000 volume, or 33 per cent more business. If it cuts its mark-up to 32 per cent it would have to do 150 per cent more business to receive the same profit, or $250,000,000.

Discussing advertising, Mr. Neustadt said that many advertisements are only 12 per cent efficient because they devote too much space to price rather than to the goods and say the same old things about "service". "The public just can't believe that all of this service exists. There is too much of it, it cannot be so. The matter of service is largely lip service, bunk service." It is in these facts that the small merchant has his greatest chance in competing with big merchants. He can give real service. He can put his own personality into his business at less cost and overhead.

One chain organization head believes the chief advantage of a big merchant is interchange of information; this, according to Mr. Neustadt, can be obtained equally well by the small merchant from his trade organization.

C. J. Geisbush, state manager, California Electragists, outlined in detail the activities of the association; the connection between the state association and the national association; the helps given local associations; and the specialized groups available, such as the estimators, motor, merchandising, residence wiring and joint trade sections; the technical service made available in estimating and through research; the help in accounting, statistics, and merchandising; and the industry service of representatives on national committees.

It was announced that the state meeting of the California Electragists will be held at Fresno October 18, 19 and 20.

Credit and Accounting

Credits and accounting were discussed by two authorities on the subject at the Santa Barbara meeting. J. J. O'Reilly, credit manager, Graybar Electric Company, Los Angeles, pointed out the demoralization of the contracting business due to lack of accounting and proper credit relationship and described steps being taken by jobbers to right the condition. The solution of the problem, according to Mr. O'Reilly, likes in working out these two principles:

"For the contractor—the installation of a correct cost accounting system. If he has that one thing all others shall be given unto him. For the jobber—the establishment of a definite credit policy, definitely enforced."

J. H. Tregoe, nationally known authority on credit matters, pointed out the wastes due to credit losses, and charged that wholesalers were committing commercial homicide by granting credit beyond a customer's credit capacity.

It was decided by the members to establish an accounting section, similar to the estimators, motor, and house wiring sections. H. H. Walker, president, California Electragists, appointed a committee to establish such a section, including: T. V. Hunter, C. J. Geisbush, and H. W. Barnes.

The meetings closed with a business session at which Frank McGinley, San Pedro, was elected president of the Southern Division; Roy Foulkes, vice president, and R. H. McCormack, treasurer.

Contractors of Boston Unite Against Sub-Standard Materials

Unanimously Oppose the Manufacture, Distribution and Installation of Non Approved Goods

CONTRACTOR-DEALER members of the Metropolitan Electrical League of Boston unanimously resolved, at their meeting on March 2, that non-approved and sub-standard electrical materials should be eliminated from the market.

The resolution, favored by every contractor present, read as follows:

"Whereas: We, the contractor-dealer members of the Metropolitan Electrical League believe that the manufacture, distribution and installation of non-approved and substandard electrical materials, and appliances constitute a menace to the public who are not generally aware of the hazard, and as the said inferior products are detrimental to our good business practices, we wish it to be:

"Resolved: That we agree to vigorously proceed to do our share to eliminate non-approved and substandard electrical materials and appliances from our market.

"Recognizing the great task confronting the electrical industry before favorable results can be shown, we hereby petition our manufacturers, distributors and central stations to back us up in this our resolution.

"Further, realizing the necessity of cooperation with others pledged to the same aims, we hereby offer our assistance and influence, subject to our board of directors, to groups in other territories formed or to be formed, for the purpose of promoting the safe and efficient use of electricity.

"Again, we pledge ourselves individually to assist in educating the public to the safety, long life, and efficiency of high grade electrical materials and appliances, by explaining the subject to our customers at every opportunity and to condemn cheap substitutes, that constitute a menace to the user and to our business.

"Finally, we endorse the constructive work along these lines already done by our league, and recommend a continuance of this policy through articles of the Melogram, newspaper advertising and contact with national associations."

New York to Attempt Elimination of Hazardous Material

Leading Members of New York's Electrical Fraternity Form Committee to Study Methods of Stopping Flood of Sub-standard Electrical Materials

A COMMITTEE has been formed in New York City, as a result of an industry meeting and informal discussion, to study possible methods of banning sub-standard and hazardous electrical materials from the biggest city, and to suggest practical means by which this may be done.

The committee was appointed as a result of a discussion held on March 29, under the auspices of the Electrical Board of Trade, where representatives of all branches of the industry set forth ideas on the subject. All agreed that sub-standard goods must be eliminated.

Among the suggestions advocated by industry leaders were: Reinspection by electrical inspectors; fire insurance inspection; local ordinances, State legislation, inspection and supervision of factories producing electrical goods; and label registration.

The members of the committee appointed were as follows: Joseph C. Forsyth, chairman; Nicholas J. Kelley, of the Department of Water Supply, Gas and Electricity; Louis Freund, Edward C. Brown, and Theo. H. Joseph, representing electrical contractors; Frank Pattison, engineer; Harry Kirkland, of the Society for Electrical Development, and L. E. Moffatt.

Home Modernizing Bureau Established

The building industries on April 11 established a new organization known as the Home Modernizing Bureau of the National Building Industries. The immediate objective is the stimulation of the modernizing and remodeling of 20 million homes; and the other objectives will be:

1. Stimulation of new building.
2. Stimulation of home-ownership.
3. Modernization of all other types of structures besides homes.
4. Persuasion of public bodies to undertake necessary public works programs.
5. Preservation of property-values in many communities.
6. Stabilization of prosperity in the building field.
7. Relief of the unemployment situation in the building trades and contribution to general prosperity.
8. Improvement of social conditions.
9. Provision of a basis for future united action on the part of all factors in the building situation looking toward their common interests and prosperity.

Walter J. Kohler, is president of the executive committee.

Annual Banquet of Members of Electrical League of Washington, D. C.

Selling Industrial Lighting

Better industrial lighting is being vigorously sold by the Electrical League of the Niagara Frontier through direct-mail, broadsides, and personal solicitation. The illustration shows the first page of a four-page letter sent to 2,000 industrial plants in the territory.

ELECTRICAL
LEAGUE
of the
NIAGARA FRONTIER

April 2nd, 1928.

Dear Mr. Executive:

Do you give your inspectors better lighting than you do your workmen?

That's like locking up the garage after your car's been stolen. Start good lighting where the job BEGINS -- out in the shop. Give your men the light your inspectors have -- and you'll be surprised to see how much spoilage is reduced -- how much material is saved.

Good lighting, designed upon accurate, scientific information, can increase your production 3%, 12% -- even 20% -- without forcing your workmen to greater effort.

Let scientific lighting help you to greater profits. We will help you plan it.

Yours very truly,

ELECTRICAL LEAGUE OF THE NIAGARA FRONTIER

L. C. Conant

Chairman Lighting Committee.

Here's how Summer Sunshine Speeds Your Men— (see inside)

National Red Seal Specifications

Two sets of Red Seal specifications, a minimum and a recommended ideal, are favored by the sub-committee on national specifications appointed by the Red Seal planning committee of the Society for Electrical Development. In drafting the minimum standard, the committee considered the opinions of league managers expressed during the January mid winter conference. In preparing the ideal or 100 percent specifications the members of the committee will consult with lighting and wiring authorities within the industry.

Flint Contractors Organize

With forty charter members, the Flint Electrical Contractors and Dealers Association was launched March 29, for the purpose of creating a better standard of work, better feeling among members, and better industry conditions. Meetings will be held on the second and fourth Thursdays of each month. Officers are: Paul Schagane, president; Milo Crankshaw, vice president; John Marble, treasurer; Earl Allen, secretary; J. E. Sills and Henry Waters, directors.

Atlanta Electragists Chartered

Members of the Association of Electragists, Int., in Atlanta, Ga., have been granted a charter by the national association to operate as the Association of Electragists of Atlanta. The chairman of the group is T. H. Fulton, of Fulton Bros. Electric Company; the secretary is L. H. Palmer.

Construction Increasing in New York

Total volume of construction in New York in 1928 may come close to the peak year, 1926, according to a report of Thomas S. Holden, of the Building Conditions Committee of the New York Building Congress, and vice president of the F. W. Dodge Corporation. The report states:

"Contracts in the metropolitan area are 5 percent more than in the same period last year. The best gains this year have been in the residential class, dwellings, apartments, hotels; there have also been increases in contracts for educational buildings, industrial buildings and public works; commercial building volume has declined."

Building volume for the first two months of 1928 increased 25 percent over 1927; in Westchester County the increase is 90 percent; in Northern New Jersey 3 percent; in contemplated work reported, the increase is 118 percent.

Testimonial for T. C. O'Hearn

A testimonial dinner was held in Cambridge, Mass., April 17, in honor of Timothy C. O'Hearn, City Electrician of Cambridge, who has served in that department for twenty-five years. Among the speakers was H. B. Kirkland, of the Society for Electrical Development, who brought the regards of the industry and a message of good will from the inspection departments of fifty cities which he visited on his recent tour.

Engineering Department in Baltimore

Baltimore electragists have put into operation an engineering department, with Frank G. Goudy in charge, the purpose of which is: 1. To establish contact with architects, engineers, and owners for the purpose of creating a demand for adequate wiring; 2. To render engineering service of a consulting nature to members of the association; and 3. To make quantity surveys for estimating purposes.

Municipal Electricians' Convention

Plans are being made for the next annual convention of the International Association of Municipal Electricians, which will be held in New Orleans, October 23 to 26. The Arrangement committee has commenced its meetings, the first being held in New Orleans with the following members present: David Reed, president; Harold N. Lang, secretary; W. A. Dilzell, treasurer; Clarence George, George P. Allen, Charles Berst, Frank S. Frost, L. A. S. Wood, D. J. Morgan, H. B. Kirkland, and George W. Brown.

New England Inspectors Meet

Members of the western New England chapter of the Eastern Association of Electrical Inspectors met in Springfield, Mass., March 22, and discussed

problems of the Code. Chester J. Peacock, of Underwriters' Laboratories, and A. A. MacPherson, of West Haven, Conn., made addresses, which were followed by a general discussion.

Jobber Changes Management

George W. Provost, formerly president of the Union Electric Co., Pittsburgh, Pa., has assumed control of the Doubleday-Hill Electric Company.

New Red Seal Leagues

Electric Leagues in Fond du Lac, Wis., and Cincinnati, Ohio, have been licensed by the Society for Electrical Development to operate under the Red Seal plan, and two other cities, Sheboygan, Wis., and Easton and Phillipsburg, Pa., will be licensed soon. This will make a total of 86 Red Seal leagues throughout the country.

Cincinnati has opened its Red Seal program by a model Red Seal home at the local home beautiful exposition.

New York State Lien Law

Revision of the New York State Lien Law is contemplated by the State Legislature and the members of the building industry who favor the revisions have formed an Association for the Revision of the New York State Lien Law. This association, which has an office at 1819 Broadway, New York City, has issued a memorandum explaining the proposed revisions, a copy of which may be obtained by interested electrical contractors.

Colorado State Meeting

Electrical contractors, dealers, jobbers, manufacturers, and public utility representatives of Colorado met in Denver March 26 for the third annual statewide meeting. Clyde L. Chamblin, president, Association of Electragists, Int., made the principal address at the morning session and led the discussion on contractors' problems at a private session for contractors held in the afternoon. B. J. Rowan, chairman, Electrical League of Colorado, addressed the meeting, as did J. J. Cooper, of the Electrical League Council, G. R. Buck, chairman of the commercial section, Rocky Mountain Division, N. E. L. A.; and C. N. Shannon, president, Denver Electrical Contractors' Association. A banquet and program was held in the evening.

Manufacturers' Discounts

Abolition of Cash Discounts and Price Cutting Favored by Electrical Manufacturers

THE electrical manufacturing industry should not be a charitable institution, according to R. J. Russell, vice-president, Century Electric Company, who addressed the Policies Division meeting of the National Electrical Manufacturers' Association on the subject of "Terms of payment". His contention that cash discounts serve no useful purpose and should be abolished was received with much favorable comment from other electrical manufacturers.

"I feel that many are wearing clouded glasses," said Mr. Russell, "who give terms longer than 30 days, either on the bill or by deferring pursuing collection under the belief that they are holding their trade by so doing. That's one way of cutting the price and reducing profits.

"Why invade the banker's fields by such methods? As citizens, we have set him up to do the banking. We should support him. He is organized to take the risk. Let him do it. We should be happy to help him do so. I feel that 30 days is long enough for any well organized business organization to properly audit, voucher, draw check for and mail it to apply on their purchases.

"If the manufacturer chooses to compete with the banker after the 30 days have expired, he should then do so on the same terms and conditions and price for borrowing that the banker charges. They should have no quarrel with that."

Mr. Russell, frowning on time or deferred payment plans, asserted, "I hope such terms will never come into use in sales of large apparatus or in sales to the trade and that those who use them will recognize the tendency to a larger down payment, shortening of time to pay, and more attention to the probability of the buyer paying out on time. Let the banker have a chance."

Major disadvantages in cash discounts as seen by Mr. Russell include necessary expenditure for carrying money on cash discounts; setting up of sales resistance when unearned discounts are taken after the time has expired; expenses of checking records in determining whether discounts have been earned, and of conducting correspondence concerning discounts improperly taken.

"The question now is," concluded the speaker, "is this cash discount worth while? Is it not an expense, the basis for argument and a handicap to increased sales, which should be avoided?

"I can see no reason for a cash discount, and as I interpret that term, I am eliminating it entirely. My interpretation of the term 'Cash Discount' does not include 5 per cent or any other discount in 30 days as cash discount, but rather I consider it as a trade discount. I find it a distinct advantage to prevent all arguments between the collection department and the customer, except the one-sided one on which the customer has no comeback—you owe us, we want our money."

The Universal Mechanic

According to his business card, the handiest mechanic has been uncovered. On the back of his card is listed the following services which he will perform (he doesn't say how well) for any who desire:

"Plumbing and Heating. Jobbing of all kinds promptly attended to. Electrical work. Repair all makes of vacuum cleaners, irons, toasters, percolators, waffle irons, heaters, electric washers, hair dryers, curling irons and appliances of any kind. Make keys and repair locks. Put in sash cord and glass. Hang awning and odd jobbing. Carry complete stock of hardware, paints, glass, housefurnishings and etc."

Favors Wiring Regulations

The Michigan Association of Electrical Inspectors favors the following wiring regulations for the State of Michigan:

That all 125-250 volt, single and three-phase switches, up to and including 400 amps. of the service entrance and meter service type, shall be of the accessible fuse type with provision made for sealing the cabinet and the fuse cover separately, and shall have the interlocking feature.

That all meter service switches above 30 amps., 125-250 volt, where used with self-contained meters shall be equipped with four-strap testing facilities.

That on all grounded neutral systems, solid neutral service entrance and meter service switches be used on all installations where a water pipe ground or its equivalent is used.

That on all 440 volt installations a separate enclosed four-strap testing device shall be used.

That all 30 amp., 125-250 volt switches used on grounded single phase or direct current shall be of the plug fuse type only.

That no circuit fuses shall be permitted in the meter service switch compartment.

That all current and potential transformers, up to and including 440 volt, excepting switchboard installations, shall be completely enclosed in a steel cabinet, with provision made for the sealing of this cabinet.

Minimum Standards Advocated

Members of N. E. M. A. Policies Division Favor Minimum Performance Standards for Electrical Goods

ADOPTION of minimum standards of performance for electrical products was favored by the Policies Division of the National Electrical Manufacturers' Association after an address on the subject by W. S. Rugg.

According to Mr. Rugg, "If electrical manufacturers in the United States are to maintain their place in the world market and at the same time maintain a scale of wages which will permit our present or an advanced standard of living, this must be done through an increased attention to the costs of production and distribution. To achieve this, there must be a degree of standardization sufficient to maintain a given model until the expensive machinery necessary for its production in quantity may be justified," said Mr. Rugg.

Successful standardization already accomplished by the industry on apparatus characteristics, such as capacity, speeds and dimensions, should be followed by establishment of quality levels of performance in Mr. Rugg's opinion.

Regarding the minimum standard of performance as a direct means of achieving economy and efficiency of production, and above all, of insuring the user of apparatus against unbalanced design and performance, and general unsatisfactory service, Mr. Rugg described the ideal minimum standard as accomplishing a balance between—

1—Lowest cost of manufacturing and distribution.

2—Greatest adaptability to the purpose for which the apparatus is to be used.

3—Greatest durability, or its length of life.

4—Lowest cost of maintenance.

5—Lowest cost of power for operating it.

Such standards should be developed to meet the interests of the major groups concerned. These are the manufacturer, the application engineer, the manufacturer of power and the user, and should be so adjusted as to require no immediate undue cost of redesign and retooling, and to permit a gradual raising of the standard as the producer's skill should increase.

"Minimum standards of performance should be especially advantageous in all lines of electrical apparatus which have been long enough established to have arrived at a more or less stable condition," asserted Mr. Rugg. "There could be no objection to devices having certain characteristics better than the minimum required standards. There should, however, be a penalty attached to devices in which any characteristic is below the minimum agreed standard."

Red Seal Demonstration Home

The Poughkeepsie (N. Y.) Electrical League opened a Red Seal demonstration home on April 23, with several unusual features. The house contains seven rooms and two baths. Fred Kloepfer, who installed the wiring, put in illuminated house numbers, connections in several rooms for a radio loud speaker and telephone extension, baseboard "invalid" light in the bedrooms, a built-in electric heater in the bathroom, and two fuse boxes in convenient locations.

The home was completely furnished by local merchants, and every convenient electrical appliance was shown by members of the league to the people who visited the demonstration.

Licensing Law Approved

The Board of Police Commissioners of Toronto, Canada, has approved a new law which makes it compulsory for all persons engaging in electrical installation or repair work to be licensed. The law goes into effect on May 1. An examining board will pass on all applications for licenses.

"Rely on Your Electrician"

Boston people are seeing the slogan, "Rely on Your Electrician," everywhere. Billboards, car cards, newspapers, are telling them that the electrician brings them comfort and convenience. The campaign is that of the Edison Electric Illuminating Company of Boston, and many contractors are tieing in with their own advertisements. The illustration shows an illuminated billboard in Roxbury, which instructs the public to "Rely on Your Electrician." Note that the name of the Edison Company does not appear on the billboard at all.

Report on Armored Cable

In a report from A. R. Small, vice president of the Underwriter's Laboratories, it is stated that laboratory tests on armored cable indicated that cable made of .025 strip does not convey fire to the outside when burnouts of conductors take place with the conductors loaded up to 100 percent in excess of the National Electrical Code standard fusing for the circuits involved.

"It was shown," according to Mr. Small, "that it will be feasible to specify and obtain such a maximum value for resistance of armor when in the lying-straight position as to produce no dangerous rise in temperature in the metal when it is called upon to carry grounding currents such in excess of those for which the circuit wires are properly fused. All manufacturers in the industry are now cooperating with the staff of the Laboratories relative to the installation of equipment and test methods to control this factor on the entire output."

New Red Seal League

The Electrical League of Sheboygan, Wisconsin, has been licensed by the Society for Electrical Development under the Red Seal Plan, as of April 9, 1928.

Many Homes Still Unwired

Only 5 per cent of the homes of this country are adequately wired, according to H. T. Bussman, vice president of the Bussman Manufacturing Co., St. Louis, who addressed the recent monthly meeting of the Rochester Electrical League. That leaves 95 per cent still inadequately wired, with plenty of work for electrical contractors, if they'll go after it, he said.

Following the address, directors for the league were elected for 1928.

Electrical Committee to Meet

A special meeting of the Electrical Committee of the National Fire Protection Association will be held at Atlantic City May 3, 4, and 5, for the purpose of finally passing on the 1928 edition of the National Electrical Code. The regular meeting in February was so crowded for time that it was found necessary to put off final action until a special correlating committee had gone

over the suggested changes and studied them. The report of the correlating committee now being ready, the Electrical Committee will meet for action.

Standardization of Hacksaw Blades

Recommendations for standard tungsten and carbon hacksaw blades were adopted at a general conference held April 12, at the Department of Commerce, by manufacturers, distributors, and users of the commodity. The conference set July 1, 1928, as the date when the recommendations shall become effective. The plan is to eliminate unnecessary sizes and specifications of hacksaw blades and reduce the wastes attendant upon the production of a large diversity of stock sizes. The recommendation reduces the variety by 75 per cent. The standard sizes hereafter will be as follows:

HAND HACKSAW BLADES. ALL HARD: ALSO FLEXIBLE BLADES.

Length	Width	Thickness	Teeth per In.
8 in.	7/16 in.	.025 in.	14, 18, 24, 32
10 "	1/2 "	.025 "	14, 18, 24, 32
12 "	1/2 "	.025 "	18, 24, 32
12 "	9/16 "	.025 "	14, 18, 24
POWER HACKSAW BLADES, ALL HARD			
12 "	5/8 "	.032 "	14, 18
12 "	3/4 "	.032 "	14, 18
12 "	3/4 "	.049 "	10, 14
12 "	1 "	.049 "	10, 14
14 "	3/4 "	.049 "	10, 14
14 "	1 "	.049 "	10, 14
14 "	1 "	.065 "	8, 10
17 "	1 "	.049 "	10, 14
17 "	1 "	.065 "	8, 10
18 "	1 1/4 "	.065 "	8, 10
20 "	1 1/4 "	.065 "	8, 10
24 "	1 1/2 "	.065 "	6, 10

Ontario Contractors Meet

Members of the Ontario Association of Electrical Contractors and Dealers, Toronto District, met at dinner April 16, to discuss the changes in the new Code of the Canadian Engineering Standards Association which went into effect on May 1. The changes were described by the chief electrical inspector.

The following officers were elected for the forthcoming year: George Armstrong, chairman; Martin Nealon, vice-president; G. W. Leach, William Mather, Harold Blenkarn, Harry Bertram, Gordon Alexander, executive committee.

Prizes were awarded to the winners of the contractors bowling meets.

Bowling has become the get-acquainted sport of the Toronto contractors. At the end of the season a World's Series was held between the contractors and the inspectors and between the contractors and the jobbers. In each case the contractors were winners.

Uniform Lien Act

A second tentative draft of a proposed uniform mechanic's lien act has been printed by the Department of Commerce, and copies may be obtained from that source. When this proposed act has been finally approved, the various State legislatures will be asked to pass it so that there will be greater uniformity among the acts of the forty-eight states.

The committee working on the preparation of this act is composed of representatives appointed by Secretary Herbert Hoover, of the Department of Commerce, and a special committee of the National Conference of Commissioners on Uniform State Laws. Proposed acts approved by the latter body are usually endorsed by the American Bar Association, and many acts which have obtained such endorsement have been passed by a large number of State legislatures.

New York State Contractors To Meet

June 11 and 12 have been selected as convention dates for the New York State Association of Electrical Contractors and Dealers. The meetings will be held in Rochester, N. Y. and the convention is open to all branches of the electrical industry. Reservation should be made by communicating with A. Lincoln Bush, president, 906 6th Avenue, New York City; or Louis Freund, 23 West 31st Street, New York City.

California Inspectors Elect Officers

Members of the California Electrical Inspectors' Association, holding their fifth annual convention in Santa Barbara, March 23, elected the following officers for an eight months' term until the next convention: Carl Beaton, president; A. E. Johnson, vice president; C. W. Mitchell, secretary; F. A. Morrell, Cyrus Geisbush, and W. R. Franklin, members of executive committee. Sacramento was chosen as the next convention city and the meeting will be held in October.

Nearly 200 members attended the sessions, which included round table discussions of technical problems, and addresses by W. L. Frost, William Cyr, and W. S. Borden.

Manufacturers Want Regulation

Ordinances to compel the inspection of manufacturers' stocks as a regulatory measure to eliminate unsafe substandard materials were approved by the Board of Governors of the National Electrical Manufacturers' Association at its session in Chicago. The resolution was one of several passed by the board which were favored by the NEMA committee on codes, statutes, and ordinances. Among them were the following:

"Resolved that each section be instructed to immediately call for Industry Conferences and revise the standards applying to materials, devices and appliances within the Section's scope if necessary, so that these standards can be properly approved through A. E. S. C. Procedure.

"Resolved that as soon as a sufficient number of approved standards for materials, devices and appliances are available through A. E. S. C. procedure, the NEMA committee on Promotion of Codes, Statutes and Ordinances actively support stock inspection ordinances to eliminate the unsafe substandard materials.

"Resolved that in order that there may be uniform interpretation of the Uniform Codes under the Uniform Ordinance, NEMA strongly endorses the movement to form a properly organized International Electrical Inspectors' Association.

Electrical Club Organized

Electrical men of New Britain, Conn., have organized an Electrical Men's Club, the first meeting being held March 30, with 75 representatives of all branches of the industry present. Officers were elected as follows: Harry Sharp, president; John McFarlane, vice president; D. B. Miller, secretary; Robert McConnell, treasurer.

OBITUARIES

Charles E. Corrigan

Charles E. Corrigan, formerly vice-president of the National Metal Molding Company, Pittsburgh, and a prominent figure in the manufacturing industry, died in Jacksonville, Fla., March 24. Mr. Corrigan retired from

business in 1926 and moved to Sarasota, Fla. During his career, Mr. Corrigan was for many years chairman of the conduit section of the Associated Manufacturers of Electrical Supplies, and a member of other committees and the board of governors. He was considered an authority on concentric wiring.

John Joseph Murphy

John Joseph Murphy, president, Electric Construction and Machinery Company, Rock Island, Ill., died April 4 after an illness of four weeks. He was 59 years old, having been connected with the electrical construction industry since its beginnings. He was first employed by the Iowa Bell Telephone Company; then by the People's Power Co., of Rock Island, later becoming superintendent of construction. In 1910 he became associated with the Electric Construction and Machinery Company as superintendent and in 1921 as president.

Mr. Murphy was one of the foremost electrical engineers in the middle west. He was president of the contractors' section of the Electrical League of the Tri-Cities, and a member of the Association of Electragists, International.

Of him R. B. Kellogg, manager of the Electrical League of the Tri-Cities, a personal and business friend, says: "We all regret the passing of Mr. Murphy, because he was for so long one of the leading lights in the electrical industry about Rock Island, Davenport, and Moline. As yet we have not fully learned how much we will miss him, but his reputation and teaching will live long after him. Yet we do know we can not lose him without feeling it."

Contractor-Dealer Notes

C. L. Berry and D. M. Duryee, of Alma, Mich., have opened a new electrical store under the name State Electrical Shop.

The new building for the Department of Agriculture, Washington, D. C., planned as the first unit of the Federal Government's new building program, will be wired by the Standard Engineering Co., which will also put in the mechanical equipment.

Contract for a white way on Evans Avenue, Fort Worth, Tex., has been let to the Eugene Ashe Electrical Company, whose low bid of $10,800 was accepted.

The California Electric Construction Co., of San Francisco, of which Clyde L. Chamblin, President of the Association of Electragists, International, is head, has just moved to larger and more modern quarters at 639 Mission St., San Francisco. An invitation was sent out to all customers calling them to visit the new quarters on March 8.

The Russell Electric Co., Tucson, Ariz., has been awarded a contract for a white way in Nogales. Eighty-two ornamental posts will be included in the installation.

New Electragists

The following contractor-dealers have made application and been accepted into the A. E. I. since the publication of the last list in the April issue:

CALIFORNIA

Glendale:
K. D. Elec. Co.

Los Angeles:
Angelus Elec. Co.
Nicholas Elec. Co.

Marysville:
Miller's Elec. Shop

Monterey:
W. H. McConnell's Light & Heat Shop

Pasadena:
Folts Elec. Co.

San Francisco:
Eureka Elec. Co.

COLORADO

Denver:
Basil Swank

CONNECTICUT

Hartford:
Philip Haas

Stamford:
Harry H. Meisel

DELAWARE

Wilmington:
Garrett Miller & Co.

IDAHO

Lewiston:
Electric Appliance Store

ILLINOIS

Galesburg:
Haskins Elec. Co.

INDIANA

Greensburg:
Hoosier Public Utility Co.

KANSAS

Halstead:
Halstead Elec. Shop

KENTUCKY

Hazard:
Howard-Beatty Elec. Co.

MASSACHUSETTS

Brockton:
Forsberg Elec. Co.

MINNESOTA

Bemidji:
Radio & Elec. Co.

Red Wing:
C. J. Ahlers & Co.

MISSOURI

St. Louis:
Hanenkamp Elec. Co.

NEW JERSEY

Camden:
Charles S. Wright

Englewood:
Busch Bros., Inc.

Teaneck:
Wesley R. Falt, Inc.

NEW YORK

Brooklyn:
John Schineller

Kingston:
Fred R. DeGarmo
J. A. McNelis Co.
Carl Miller & Son
Herbert C. Myers
Frank M. Sass
Tudoroff Bros.

OHIO

Van Wert:
J. F. Mounts & Co.

OREGON

Albany:
Willard Elec. Co.

Eugene:
Elkins Elec. Store

Klamath Falls:
The Electric Shop

Portland:
National Elec. Co.

St. Helens:
C. F. Heacock Elec. Co.

PENNSYLVANIA

Pittsburgh:
Iron City Engrg. Co.

TENNESSEE

Kingsport:
Kingsport Elec. Co.

Memphis:
Tri-State Armature Works

VIRGINIA

Richmond:
Chewning & Wilmer, Inc.

WISCONSIN

Adell:
Berthold Miske

Eagle River:
Herold Elec. Shop

Milwaukee:
Ideal Wiring & Hdwe. Co.
Stephen Martz

Sheboygan Falls:
Guy E. Melendy

CANADA

Winnipeg, Man.:
Andrew McCaine

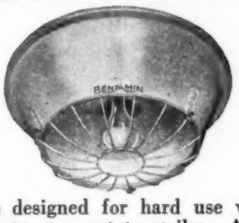
Toronto, Ont.:
Addy Elec. Co.
Black & McDonald

Montreal, South, Que.:
Arthur D. Noble

News of the Manufacturers

Gymnasium Fixture

Benjamin Electric Mfg. Co., Chicago, has put on sale a new gymnasium fixture consisting of a heavy gauge steel canopy and wire guard, with a standard dome reflector. The



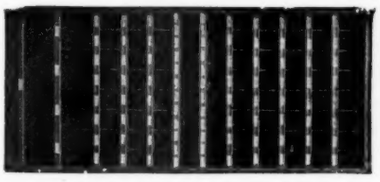
units are designed for hard use where basketballs, etc., are apt to strike. An opening in the bottom of the wire guard permits lamp replacement without removing the guard.

Connection Support

General Electric Co., Schenectady, N. Y., announces a new double bus or connection support which is mechanically expanded against the sides, top and bottom of the compartment or enclosure in which it is installed. The expansion element is a pipe nipple with a stationary flange and a movable lock nut. Vertical expansion is accomplished by unscrewing the lock nut against the bushing until the assembled unit bears rigidly against the top and bottom shelves. The stationary flange is provided with a screw and lock nut at either end by means of which it is expanded horizontally against the sides.

Steel Bins

Steel bins with adjustable dividers are announced by the Berger Mfg. Co., Canton, O. A variety of combinations and sizes of space



are possible for the storing of switches, plates and other small stock items. Bin sizes can be changed at will to fit the material to be stored. Each unit is 36 inches wide, 84 inches high, and 12 inches deep.

Motors

The Triumph Electric Corporation, Cincinnati, Ohio, has developed a line of across the line squirrel cage motors from 1 to 30 horse power. The manufacturer claims a full load starting torque of 150 percent when connected directly across the line, without the use of a compensator or resistance type starter. Ball, roller, or sleeve bearings are available.

Portable Motors

Wagner Electric Corporation, St. Louis, has placed on the market a line of air-jacketed motors mounted on portable hand trucks which can be readily moved from place to place. They are especially designed for use on farms and each is provided with a long cord, two pulleys, and an automatic starter giving thermal overload and low voltage protection. Motors of 2, 3, 5, and 7 1-2 h. p., 1725 r. p. m., 220 volts, single or polyphase, are available.

Floodlights

Curtis Lighting, Inc., Chicago, announces a new floodlight for stores. It is a small unit designed to highlight featured articles in window displays by concentrating a smooth, brilliant beam upon them. It may be concealed behind small display fixtures, unit trims, pillars; or placed behind transparent screens to be used for silhouetting. It is designe for 100-watt lamps, and is equipped with reflector which, according to the manufac turer, produces 4000 candlepower light.

Another new floodlight (manufacturer' No. 25) is made of steel with bronze rivet and fasteners and iron base. It has a un versal adjustment; green, red, amber, blu clear, and diffusing lenses are available. standard 200-watt lamp is used.

Attachment Plugs

General Electric Co., Schenectady, N. Y announces several new types of attachmen plugs, made of composition, with expose metal parts finished in polished nickel. On

type has a 13-32 inch. round cord hole; another has an oval cord hole 9-32 inch by 3-8 inch; caps rated 10 amp., 250 volt have each type of cord hole; the bodies have locating slots and are rated 660 watt, 250 volt.

Wiring Gutter

Diamond Electrical Manufacturing Co., San Francisco, Calif., is making a wiring gutter which may be used to connect several motor starting switches, apartment house meters, etc. The gutter comes in two sizes, 4 inch by 4 inch, and 4 inch by 6 inch, and may be had in any of several lengths from 1 to 4 feet. The end plates and side walls are provided with knockouts which are so designed that any of three sizes of openings may be obtained for the conduit. Larger sized gutters are furnished to order and almost any combination may be made up.

Residence Fixtures

The Ivanhoe Division of the Miller Company, Cleveland, Ohio, announces a new line of residential fixtures which may be used with almost any period arrangement, and not being of any particular period the line has been named the Cosmopolitan. Included are ceiling and suspension fixtures with brackets to match, finished in pewter and gold. Glass shades are also available.

Devices

Pass & Seymour, Syracuse, N. Y., has added several new products to its line: a porcelain sign receptacle, a pull chain canopy switch,

a canopy supporting switch with wall bracket, intermediate base shell sockets, a pendant cap with cord grip, a porcelain angle socket. The pull chain canopy switch is illustrated.

Portable Blower

Electric Blower Co., Boston, Mass., announces a new portable blower with universal ball bearing air cooled motor, designed for blowing dust and dirt out of motors, switch boards, machinery, etc. It is made of aluminum, one-hand operated, with a toggle switch in the handle operated by the thumb. The blower is furnished with 110-, 220-, or 250-volt motor, 20 ft. of cable, total weight 6½ lbs.

Concrete Boxes

General Electric announces new concrete boxes for rigid conduit, in several sizes from 2 in. to 6 in. in depth. The back plate may be furnished either with or without swedged fixture stud. The boxes are eight sided and have both ½ in. and ¾ in. knockouts, and a galvanized finish.

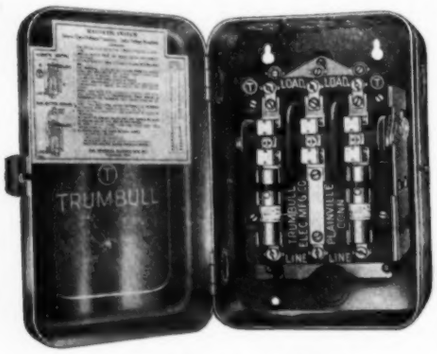
Intensifier

Benjamin Electric Mfg. Co., Chicago, is now making a supplementary lighting unit for intensifying light on close inspection or machine work and other special operations where it is desirable to concentrate an intense light on small areas, in addition to good general illumination. With the lighting unit intensities of illumination are obtained of from 35 ft. candles to 250 ft. candles, depending upon the lamp used.

Magnetic Motor Switch

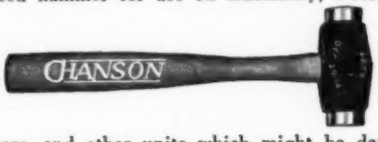
Trumbull Electric Manufacturing Co., Plainville, Conn., announce a new magnetic motor starting switch with new contact construc-

tion. The manufacturer claims for it, high interrupting capacity, no flexible connections required, contacts self-aligning, self-cleaning,



and easily removable. Line and load connections are straight through; push button station and terminals are identified, one white,

The Illinois Iron & Bolt Co., Carpentersville, Ill., has announced a new Chanson soft faced hammer for use on machinery, motors,



gears, and other units which might be damaged by a blow from an ordinary hammer. The body of the hammer is made of steel and plugs may be inserted in each end. A drift pin holds the plugs in place until replacement is desired.

Bryant Purchases Hemco

Bryant Electric Co., Bridgeport, Conn., has purchased the plant and other assets of the Hemco Electric Mfg. Co., and will continue the line of Hemco moulded sockets, plates and other composition electrical parts. The Bryant Company started manufacturing wiring devices in 1888 with a line of eight products, and now, in 1928, the line includes over 4,000 different devices. The Bryant line includes metal shell and porcelain lamp receptacles and sockets and their accessories; surface and flush switches; fuses and fuse holders; baseboard receptacles and plugs; rosettes, cord connectors; hospital signal equipment, etc. It is the plan of the company, according to the announcement, to expand the Hemco line and develop many new composition devices, to be distributed through jobbers. Stocks will be carried at Bridgeport, Chicago, and San Francisco.

New Catalogs

B. B. T. Corporation, Philadelphia, has issued a new booklet on "A New Principle in Floodlighting" which describes its units equipped with Fresnel lens, and illustrates examples of commercial floodlighting.

Benjamin Electric Manufacturing Co., Chicago, has published a bulletin on the "little Sentry" line of panelboards featuring an arrangement for individual control of branch circuits when desired.

Enameled Metals Co., Pittsburgh, has published a leaflet on galvanized conduit describing the method of manufacture.

The Kayline Co., Cleveland, has issued a booklet on its ceiling units, with details of sizes, colors and prices, and installations.

Personnel Changes

rumbull-Vanderpoel Electric Manufactur- Co., Bantam, Conn., has opened an office Boston. Frank W. Garner, who has been nected with the New England sales force, be manager.

dwards and Co., Inc., New York, announce appointment of Walter I. Ferguson and as representatives in Kansas City, at 208 timore Bldg., and St. Louis, at 1486 Ar- e Bldg.

. W. Muench, for nine years director of s and advertising of George Richards and has announced the organization of a new ertising agency specializing in electrical ounts. Mr. Muench who will devote all is time to the new organization, has had y years of experience in sales and adver-

tising work. In addition to his work in advertising and selling Hemco products, Mr. Muench has been for many years identified with Northwestern University in the marketing departments; he has contributed frequently to electrical and hardware trade journals; is co-author of several marketing and advertising books, and winner of the 1925 Northwestern University "Kellar" merchandising prize.

Ideal Commutator Dresser Co., Sycamore, Ill., has appointed the Syracuse Supply Co., 314 W. Fayette St., Syracuse, N. Y., exclusive sales representatives for its resurfacers and other motor maintenance equipment in the Syracuse territory.

The Meyers Safety Switch Co., San Francisco, Calif., is just finishing construction of a new two story factory building adjoining the present plant at 419 Tehama Street. The new factory will be devoted to the manufacture of switchboards, externally operated switches and panelboards; the old plant will be used for storage and light assembling.

Porcelier Manufacturing Co., formerly of Pittsburgh, has moved its office and warehouse to its pottery at East Liverpool, Ohio.

The New York Branch of the National Carbon Co., has moved to a new plant at Fourteenth and Henderson Sts., Jersey City. The company states that this change more than doubles the size of its plant.

Martindale Electric Co., Cleveland, has opened a New York branch at 6 East 46th St., and a Los Angeles branch at 210 East 3rd St.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, of "THE ELECTRAGIST," published monthly at Utica, N. Y., for April 1, 1928:

State of New York, }
County of New York, }ss.:

Before me, a Notary Public in and for the State and County aforesaid, personally appeared S. B. Williams, who having been duly sworn according to law, deposes and says that he is the Editor of "THE ELECTRAGIST," and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, Association of Electragists—International, 15 W. 37th Street, New York, N. Y.
Editor, S. B. Williams, 15 W. 37th Street, New York, N. Y.
Managing Editor, none.
Business Manager, Laurence W. Davis, 15 W. 37th Street, New York, N. Y.

2. That the owner is:

Association of Electragists—International. Not incorporated. Composed of 1891 members, of which principal officers are:

Clyde L. Chamblin, 639 Mission Street, San Francisco, Cal.
Laurence W. Davis, Secretary-Treasurer, 15 W. 37th Street, New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding one per cent. or more of total amount of bonds, mortgages, or other securities are: none.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the Company, but also, in cases where the stockholder or security holder appears upon the books of the Company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signature of) S. B. WILLIAMS,
Editor.

Sworn to and subscribed before me this 26th day of March, 1928.

MAY E. CASLIN.
(My commission expires March 30, 1928).